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IBM

Domino Certification Authority and SSL Certificates

Setup Domino as Certification Authority

Process Client Certificate Requests

Mike Bartlett

ibm.com/redbooks

Redpaper

Redpaper

International Technical Support Organization

Domino Certification Authority and SSL Certificates

November 2000

Take Note!

Before using this information and the product it supports, be sure to read the general information in Appendix A, “Special notices” on page 59.

First Edition (November 2000)

This edition applies to Lotus Domino R5.0.4

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Preface

To test certificate based authentication it is necessary to create keyrings to hold certificates for HTTP servers and for the browsers used to access the servers. This is most conveniently done by creating a certification authority to create and administer the necessary SSL certificates

This redpaper describes in detail how to setup Domino R5.0.4 as a Certification Authority (CA). We describe how to create and configure the Domino CA database, how to create a server keyring and how merge and install certificates into the keyring. Next, we describe how to issue client certificates from our newly created CA. This involves all the steps in accepting our CA as trusted root in the browser, requesting a certificate, approving the request, accepting the issued certificate into the browser keyring and finally requesting registration of the client certificate.

We assume some knowledge of Public Key Infrastructure (PKI), x509 certificates and Domino administration.

The author that wrote this redpaper

This redpaper is a side product of the Redbook *Domino and WebSphere Together*, SG245955 that was produced by a team of specialists from around the world working at the International Technical Support Organization Cambridge Center. The authors biography is below.

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This redpaper was compiled by Søren Peter Nielsen from ITSO Cambridge.

Chapter 1. Domino Certificate Authority and SSL Certificates

To test certificate based authentication it is necessary to create keyrings to hold certificates for HTTP servers and for the browsers used to access the servers. This is most conveniently done by creating a certification authority to create and administer the necessary SSL certificates. We chose to employ the Domino certificate authority to create the necessary keyrings and certificates. This paper describes the necessary steps to create a Domino based certification authority, browser certificates and client certificates to support SSL v3 certificate (x.509v3) based authentication.

We assume a good background understanding of the Public Key Infrastructure (PKI) concepts involved and concentrate on the specific tasks to be performed in a Domino environment.

It is possible to use SSL for multiple protocols; however, we describe the setup for web access (that is HTTP and HTTPS protocols). Other protocols can easily be configured to use the certificate infrastructure we describe.

The steps involved to setup a secure environment with both server and client (browser) SSL certificates using a Domino certificate authority (CA) are:

1. Create the Domino certificate authority database and the keyring for the certificate authority.

   This keyring holds the public and private key of the CA. The private key is exclusively used to sign server and client certificates, The public key of the CA is signed with the CA's private key. This signed public key is used to provide a certificate flagged as a "trusted root" to be installed in server and clients to establish a chain of trust.

2. Create the Domino server's keyring and have its public key certified by the Domino CA

   This will require setting up a Domino Server Certificate Administration database to manage the server's keyring file.

3. Request a client certificate(s) for the browser(s) and user(s) to access the server.

   If you are using certificate based authentication (not just SSL connections), store the client certificate(s) in the Domino directory for authentication.

The steps outlined require access by both a browser and a Domino Administrator client:

- **Web browser**:

  The server administrator uses a browser to request and later receive a server certificate (as well as the “trusted root” certificate of the certificate authority)

  The browser client uses their browser to request and receive their client certificate, and, as with the server, the certificate authority’s “trusted root” certificate

  We tested using Netscape 4.7; the process Internet Explorer uses to accept client certificates is analogous, but not identical.

- **Domino Administrator Client**:

  This is necessary to approve the certificate requests and to configure the Domino server’s HTTP task to support SSL.

The relationship between the Domino certificate authority database, the Domino certificate administration database and the Web browser is shown in Figure 1.

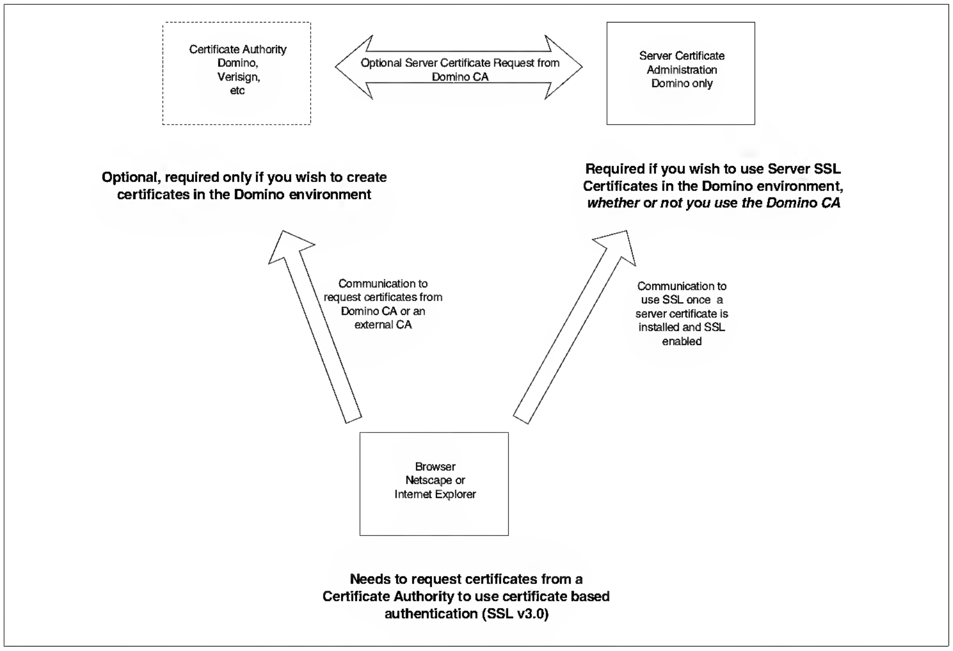

Certificate Authority Domino, Verisign, etc
Optional Server Certificate Request from Domino CA
Server Certificate Administration Domino only
Optional, required only if you wish to create certificates in the Domino environment
Required if you wish to use Server SSL Certificates in the Domino environment, *whether or not you use the Domino CA*
Communication to request certificates from Domino CA or an external CA
Communication to use SSL once a server certificate is installed and SSL enabled
Browser Netscape or Internet Explorer
Needs to request certificates from a Certificate Authority to use certificate based authentication (SSL v3.0)

Figure 1. Relationship between Domino CA database, Cert. admin. database and Web browser

1.1 Creating and configuring a Domino certificate authority database

To establish a Domino certificate authority to allow you to certify server and browser certificates, you must create a Domino certificate authority database. This database will allow you to create and manage an SSL certifier similar to a Notes certifier; the difference is that a Notes certifier is used in the *creation* process for other certificates (in Notes ID files); the SSL certifier can only *sign* certificate requests. Once a server or client's public key (plus distinguished name and other identifying material) is signed by the SSL certifier, it can be used as an SSL certificate. Server or client certificates are used for SSL session setup and authentication; SSL certifiers are exclusively used to certify other public keys.

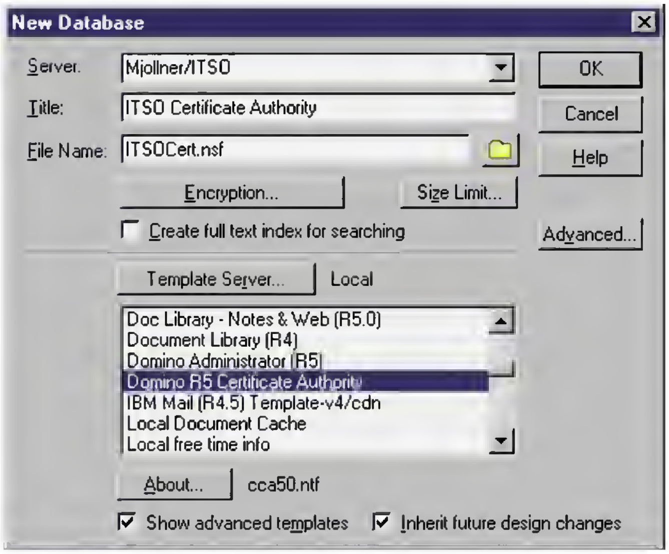
The Domino certification authority application has the following functions:

1. Create and manage the Domino certificate authority keyring file, which holds the certificate authority SSL certificate
2. Sign (that is, certify) server and client public keys when requested to create new certificates. The server administrator or client must paste a request into the CA database to start the certification process.

   Clients can also use the certificates for S/MIME encryption and/or signing of e-mail (if they supply their e-mail address to be included in their certificate)

   The Domino CA application allows automatic or manual addition of client certificates created by the application to be added to the Domino Directory
3. Add client certificates to the Domino Directory on request. The client certificates can be either from the Domino certificate authority (if necessary) or an external certificate authority. Note that, even if you choose to use an external certificate authority to create server and client certificates, you may choose to install the CA application for the purpose of adding client certificates to the Domino Directory for authentication.
4. Create a server keyring file with a signed server certificate for the server the Domino CA is installed on. This (optional) feature is a convenience to the CA administrator but is not absolutely necessary. We illustrate requesting server certificates by browser since this would be necessary in any case for any Domino server other than the CA server and if using an external certificate authority.

The certificate authority database is created by creating a new database on the server using the usual command **File - Database - New** (preferably from a Domino Administration client with administrator rights) and specifying the server, Database Title, filename and template as shown in Figure 2 on page 4:



New Database

Server: Mjollner/ITSO

Title: ITSO Certificate Authority

File Name: ITSOCert.nsf

☐ Create full text index for searching

Template Server... Local

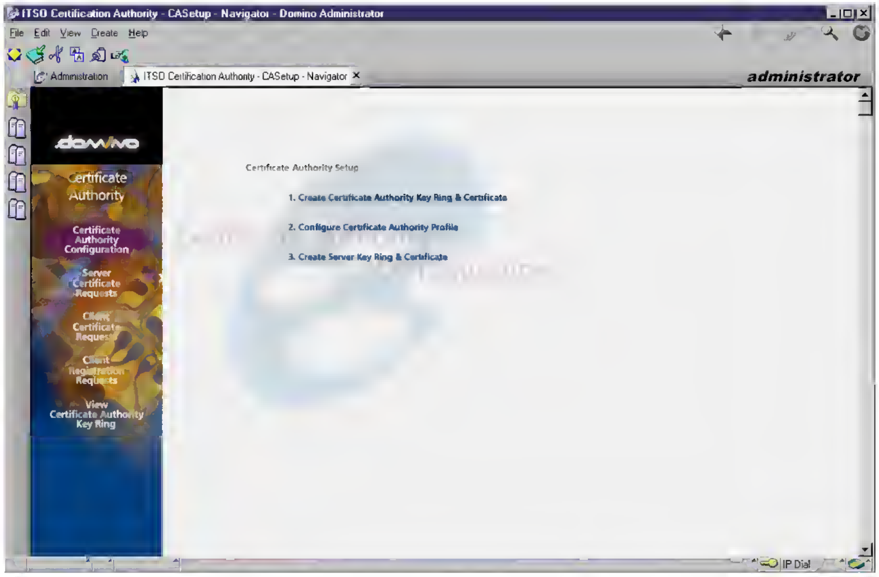
- Doc Library - Notes & Web (R5.0)
- Document Library (R4)
- Domino Administrator (R5)
- Domino R5 Certificate Authority
- IBM Mail (R4.5) Template-v4/cdn
- Local Document Cache
- Local free time info

About... cca50.ntf

☑ Show advanced templates ☑ Inherit future design changes

Figure 2. Creating the Domino Certification Authority Database

Note that it is necessary to select “**Show Advanced Templates**” in the lower left corner of the panel for the Domino R5 Certificate Authority template to be listed. Press **OK** to create the database on the server specified. The database will be created and will open to its default navigator. If for some reason it does not, you can also locate and open it in the **Files** tab of the Domino Administrator by double clicking on the database name. The initial Certificate Authority setup screen is shown in Figure 3 on page 5.


ITSO Certification Authority - CASetup - Navigator - Domino Administrator
File Edit View Create Help
Administration
ITSO Certification Authority - CASetup - Navigator
administrator
domino
Certificate Authority
Certificate Authority Configuration
Server Certificate Requests
Client Certificate Requests
Client Registration Requests
View Certificate Authority Key Ring
IP Dial

Certificate Authority Setup

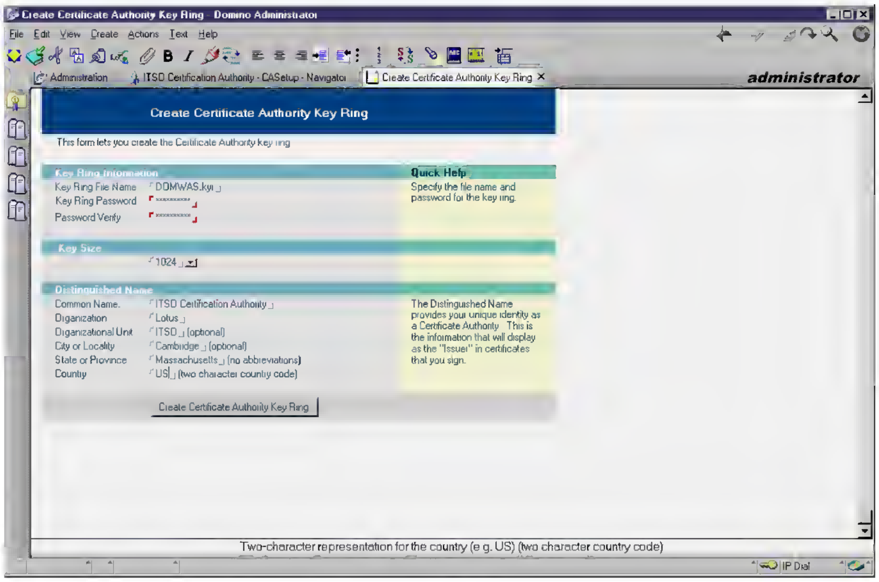
1. Create Certificate Authority Key Ring & Certificate

2. Configure Certificate Authority Profile

3. Create Server Key Ring & Certificate

Figure 3. Domino Certificate Authority Initial Setup Screen

Select “**1. Create Certificate Authority Key Ring and Certificate**” by clicking on the line (it will show a outline box as you move your mouse cursor over it). This will open the certificate authority keyring creation dialog:


Create Certificate Authority Key Ring - Domino Administrator
File Edit View Create Actions Text Help
Administration
ITSO Certification Authority - CASetup - Navigator
Create Certificate Authority Key Ring
administrator
IP Dial

Create Certificate Authority Key Ring

This form lets you create the Certificate Authority key ring

Key Ring Information

Key Ring File Name DOMWAS.kyr

Key Ring Password **********

Password Verify **********

Quick Help

Specify the file name and password for the key ring.

Key Size

1024

Distinguished Name

Common Name. ITSO Certification Authority

Organization Lotus

Organizational Unit ITSO (optional)

City or Locality Cambridge (optional)

State or Province Massachusetts (no abbreviations)

Country US (two character country code)

The Distinguished Name provides your unique identity as a Certificate Authority. This is the information that will display as the "Issuer" in certificates that you sign.

Create Certificate Authority Key Ring

Two-character representation for the country (e.g. US) (two character country code)

Figure 4. Creating the Domino Certificate Authority Keyring

Fill out the fields:

- **Key Ring File Name**:

  Choose a name for the Certificate Authority keyring or accept the default of “CAkey.kyr”. We choose “DOMWAS.kyr” for our testing. Since by default, all keyrings are created on the administrator’s workstation, the file name should give a hint of its purpose when viewed from the file system. You need not accept the default to create the keyring on the requesting workstations local drives: you can specify a network drive if desired. Note, however, that the CA keyring created here must be accessible from the workstation to use it to certify other (server and client) certificates.

- **Key Ring Password**:

  Choose a password that meets your organization’s security requirements. Since this keyring will be used to certify client and server certificates in the same way Notes certifiers certify Notes server and client certificates, it should be a secure password. *Be sure to record the password used for the certificate authority keyring file* since it will be required for all of the subsequent operations using it.

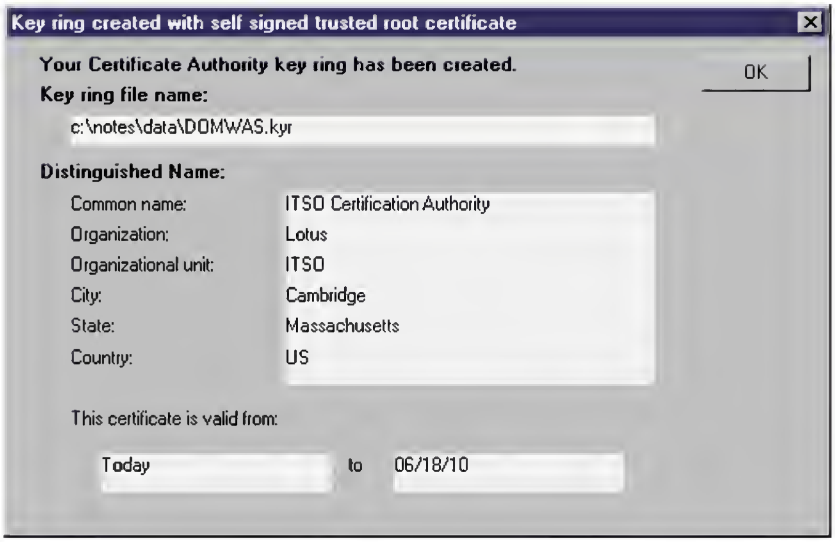
- **Key Size**:

  Specify the key size of the public-private key pair for the certification authority. You can choose either 512 or 1024 bits. Retain the default setting of 1024 bits (there is no legal requirement to use less even in international settings).

- **Distinguished Name**:

  Specify the components of the certification authority name in the fields in the bottom of the panel in as much detail as necessary for your environment; all components except Organizational Unit and City are required. The distinguished name shows as the “Issuer” in server and client certificates signed by the CA. Care should be taken to fill the components out so that it will be unlikely that another certification authority would have the same name.

When all fields have been filled in, press the button “**Create Certificate Authority Key Ring**” to create the CA’s key ring. You will get a confirmation panel as shown in Figure 5.



Key ring created with self signed trusted root certificate

Your Certificate Authority key ring has been created.

Key ring file name:

c:\notes\data\DOMWAS.kyr

Distinguished Name:

Common name:	ITSO Certification Authority
Organization:	Lotus
Organizational unit:	ITSO
City:	Cambridge
State:	Massachusetts
Country:	US

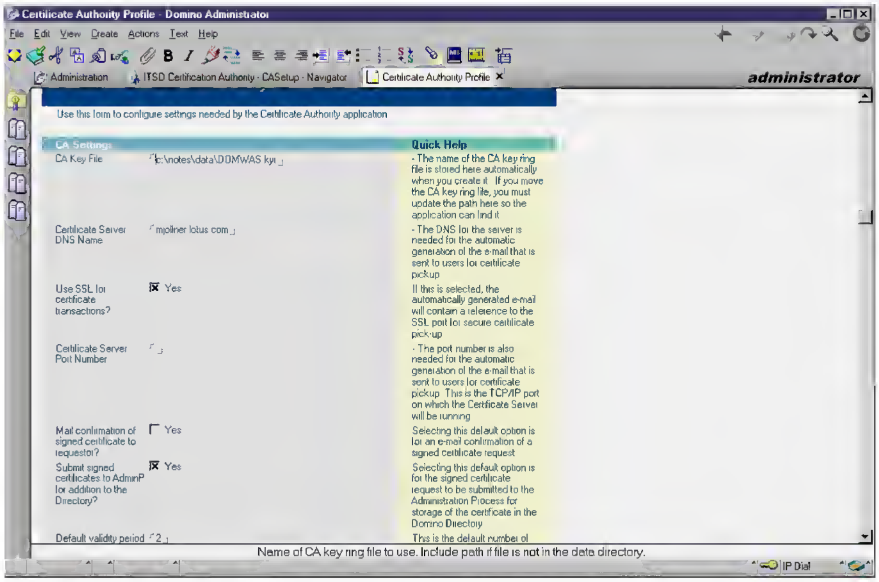
This certificate is valid from:

Today to 06/18/10

Figure 5. Confirmation of Certificate Authority Keyring Creation

Press **OK** to dismiss the CA keyring creation confirmation panel. Note that the keyring has by default been created on the workstation used to submit the request, and *not* on the server with the Certificate Authority database (unless you specified a network drive in the key ring file name in the creation dialog).

From the main certificate authority database menu in Figure 3 on page 5 select “**2. Configure Certificate Authority Profile**” by clicking on it. The configuration options will be displayed as in Figure 6 on page 8. The purpose of this profile is to create a set of default values to be used when signing certificate requests from this certificate authority.


Certificate Authority Profile - Domino Administrator
File Edit View Create Actions Text Help
Administration
ITSD Certification Authority - CASetup - Navigator
Certificate Authority Profile
administrator
IP Dial

Use this form to configure settings needed by the Certificate Authority application

CA Settings		Quick Help
CA Key File	c:\notes\data\DOMWAS kyr	- The name of the CA key ring file is stored here automatically when you create it If you move the CA key ring file, you must update the path here so the application can find it
Certificate Server DNS Name	mjollner lotus com	- The DNS for the server is needed for the automatic generation of the e-mail that is sent to users for certificate pickup
Use SSL for certificate transactions?	☒ Yes	If this is selected, the automatically generated e-mail will contain a reference to the SSL port for secure certificate pick-up
Certificate Server Port Number		- The port number is also needed for the automatic generation of the e-mail that is sent to users for certificate pickup This is the TCP/IP port on which the Certificate Server will be running
Mail confirmation of signed certificate to requestor?	☐ Yes	Selecting this default option is for an e-mail confirmation of a signed certificate request
Submit signed certificates to AdminP for addition to the Directory?	☒ Yes	Selecting this default option is for the signed certificate request to be submitted to the Administration Process for storage of the certificate in the Domino Directory
Default validity period	2	This is the default number of

Name of CA key ring file to use. Include path if file is not in the data directory.

Figure 6. Specification of Certificate Authority Settings

Fill out the fields on the panel:

- **CA Key File**:

  This will default to the location where you originally created the certificate authority keyring file. If you have moved it since creating it, point to the new location where you will keep the keyfile permanently. In any case, confirm that the keyring file name is the one you created ("DOMWAS.kyr" in our example) since the application needs to access the certificate authority keyring file.

- **Certificate server DNS name**:

  This is necessary to allow creation of the host name part of a reference URL in confirmation e-mails. If you choose not to inform users by e-mail, the field need not be filled in.

- **Use SSL for Certificate transactions**:

  Again, this is necessary to allow the URL in a confirmation e-mail to be set up properly (HTTPS rather than HTTP). The setting will change the protocol from "HTTP" to "HTTPS". Note that, if you select this option, you must configure the Domino server the CA is installed on to use SSL by creating and installing a server certificate and activating SSL as described in "Requesting and installing a Server Certificate" on page 10.

- **SSL Certificate Port Number**:

This is used to configure the URL in the confirmation e-mail. If you plan to change this in the server configuration, use the same HTTPS SSL port number. Note that the port number will not show in the URL created in the e-mail if it is the default (443) value.

- **Mail confirmation of signed certificate to requestor**:

  Select this if you want automated confirmation to be sent when you approve certificates. The message will (if you approve the request) contain a URL to allow the requestor to receive their new certificate. The previous fields must have been filled in correctly for this URL reference to work properly. If you deny the request the reason you enter on the request form will be sent in place of the URL.

- **Submit signed certificates to Adminp for addition to the Directory**:

  This will automatically add any client certificate you approve to the Domino Directory by submitting a request to the Domino Administration Process. Note that, if the CA server is not also the Administration Server for the Domino Directory, the request will have to be replicated to that server to be processed. If you chose not to have this done automatically, you can still manually initiate the request from the document containing the approved certificate subsequently.

- **Default validity period**:

  The default of 2 years is adequate for most client certificates; you can change this when approving a certificate. For example you might choose to do this for a server (10 years is common for server certificates). Note that the validity period begins from 12:00 midnight UT on the day a certificate is approved, not from the moment of approval. Thus the validity period could begin before or after the moment of approval depending on your local time zone.

When you have finished filling out the fields, scroll down and press the button marked “**Save & Close**” to return to the certificate authority main menu. Note that the options you chose will be stored in the certificate authority so you will *not* be prompted to enter the certificate authority’s keyring file password.

The third option on this menu “**3. Create Server Key Ring & Certificate**” allows you to create a server keyring with a certificate from the Domino CA on the same server as the Certificate Authority.

This is convenient if you have a single test server but is not applicable to multiple servers or obtaining certificates from an external certificate authority. We therefore illustrate how to get server certificates from a certificate authority (either a Domino or external certificate authority) using a browser and the Domino Server Certificate Administration database to manage the server's keyring file.

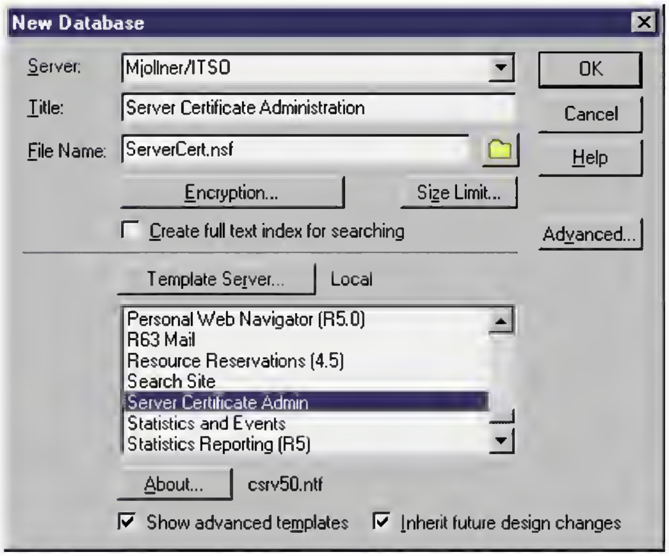
This completes the installation and setup of the Domino Certificate Authority.

1.2 Requesting and installing a Server Certificate

The following steps are necessary to setup and request a server certificate from a certificate authority.

To enable SSL on a server, it must have access to a keyring file containing the server's certified public key, private key and one or more certificates flagged as "trusted roots" from certificate authorities that have certified the server's public key. This will later allow creation of trust relationships using SSL certificates between browsers and servers and between servers using SSL.

Server keyring creation and management uses a Domino Server Certificate Administration database. This database is necessary to manage server certificates whether you use the Domino certificate authority (which we used in our testing) or an external certificate authority. You need to create it before requesting a certificate. From a Domino Administration client, press **File-New-Database** and fill out the panel as shown in Figure 7:



Server: Mjollner/ITSO

Title: Server Certificate Administration

File Name: ServerCert.nsf

☐ Create full text index for searching

Template Server... Local

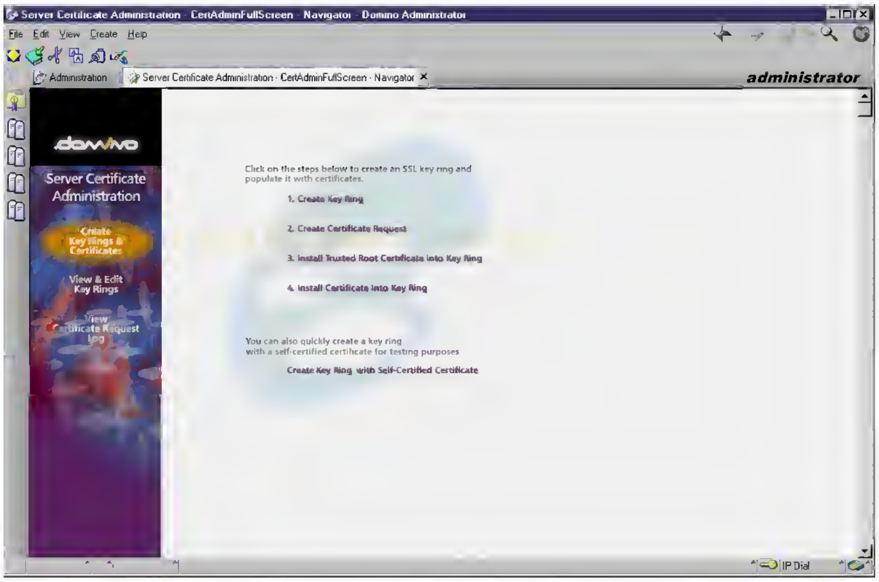
Personal Web Navigator (R5.0)
R63 Mail
Resource Reservations (4.5)
Search Site
Server Certificate Admin
Statistics and Events
Statistics Reporting (R5)

About... csrv50.ntf

☑ Show advanced templates ☑ Inherit future design changes

Figure 7. Creation of a Server Certificate Administration Database

The Server Certificate Administration database will only be shown in the list of templates if the selection "**Show advanced templates**" is checked. Create the database on the server that you will use the SSL certificates on. (If you have multiple servers that use SSL, you will need to create the database on each server). Press **OK** to create the Server Certificate Administration database. Once the database is created, it should open automatically. If it does not, open it from the administration console's "**Files**" tab (refreshed if necessary). The main server certificate administration menu will be displayed as shown in Figure 8 on page 11.


Server Certificate Administration - CertAdminFullScreen - Navigator - Domino Administrator
File
Edit
View
Create
Help
Administration
Server Certificate Administration · CertAdminFullScreen · Navigator
administrator
domino
Server Certificate Administration
Create Key Rings & Certificates
View & Edit Key Rings
View Certificate Request Log
IP Dial

Click on the steps below to create an SSL key ring and populate it with certificates.

1. Create Key Ring
2. Create Certificate Request
3. Install Trusted Root Certificate into Key Ring
4. Install Certificate Into Key Ring

You can also quickly create a key ring with a self-certified certificate for testing purposes

Create Key Ring with Self-Certified Certificate

Figure 8. Server certificate administration main menu

We will use all four steps in the Server Certificate Administration menu:

1. **Create Key Ring**

   This will create the server's keyring file plus a "stash" file to hold the keyring's password

2. **Create Certificate Request**

   This will create a key pair (public and private) and display the public key in PKCS-12 format to allow it to be pasted into a browser for submission to a certificate authority. Although our example uses the Domino certificate authority, you would also use this to submit a request to an external certificate authority

3. **Install A Certificate Authority's Certificate (flagged as "Trusted Root") into Key Ring**

   This is necessary to set up a 'chain' of certificates from the trusted root certificate authority's certificate to the server's certificate. This should be done *before* installing the server's certificate into the keyring file.

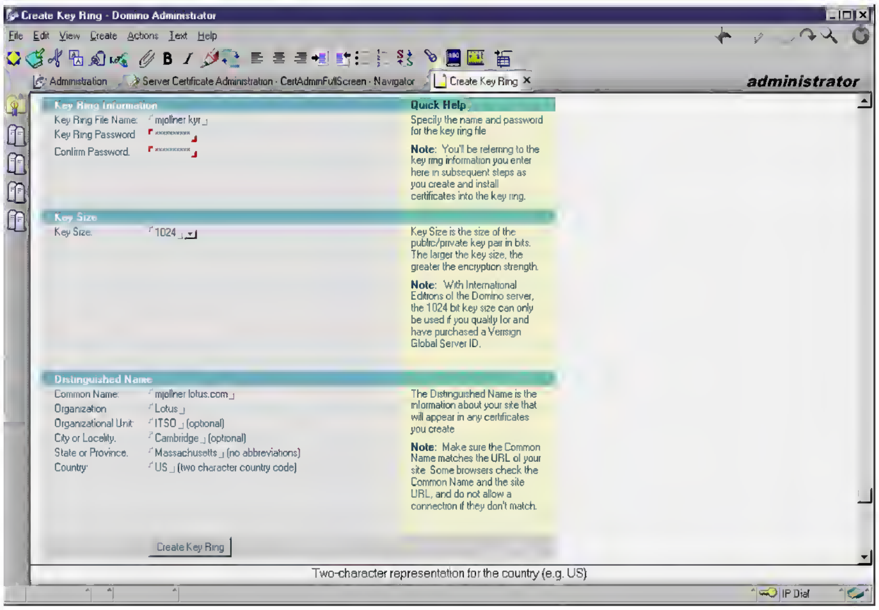
4. **Install Certificate into Key Ring**

   Once the certificate request from 2 has been approved, it is 'picked up' in a browser and added to the server's keyring file.

   The fifth step, "**Create a Key Ring with Self Certified Certificate**" is for testing purposes where only a server (site) "self signed" certificate is required (not signed by a known certificate authority). Since we wish to use client certificates for authentication, this option is not appropriate for our purposes. Note that this option creates a certificate that can be used for encrypting sessions between servers and browser, but does not allow authentication of the server's identify. It is intended for testing purposes (using SSLv2) only and should *not* be used in a production environment. If you use an external certificate authority, there will be a delay after submitting your certificate request while the CA verifies your identity. In such circumstances, this option may be convenient for testing while you wait for your external certificate to be approved.

1.2.1 Creating a server keyring

Select option 1 “**Create Key Ring**“ from the main menu of the Server Certificate Administration database. This will open the panel shown in Figure 9:


Create Key Ring - Domino Administrator
File Edit View Create Actions Text Help
Administration
Server Certificate Administration - CertAdminFullScreen - Navigator
Create Key Ring
administrator
IP Dial

Key Ring Information

Key Ring File Name: mjollner.kyr
Key Ring Password: **********
Confirm Password: **********

Quick Help

Specify the name and password for the key ring file

Note: You'll be referring to the key ring information you enter here in subsequent steps as you create and install certificates into the key ring.

Key Size

Key Size: 1024

Key Size is the size of the public/private key pair in bits. The larger the key size, the greater the encryption strength.

Note: With International Editions of the Domino server, the 1024 bit key size can only be used if you qualify for and have purchased a Verisign Global Server ID.

Distinguished Name

Common Name: mjollner.lotus.com
Organization: Lotus
Organizational Unit: ITSO (optional)
City or Locality: Cambridge (optional)
State or Province: Massachusetts (no abbreviations)
Country: US (two character country code)

The Distinguished Name is the information about your site that will appear in any certificates you create

Note: Make sure the Common Name matches the URL of your site. Some browsers check the Common Name and the site URL, and do not allow a connection if they don't match.

Create Key Ring

Two-character representation for the country (e.g. US)

Figure 9. Creating a server key ring file

Fill out the fields:

- **Key ring file name**:

  We chose to rename the keyring file to the server’s name rather than retain the default rather uniformative “keyring.kyr”. Note that this will require the name be changed in the server’s Server document (in the **Ports-Internet Ports** tab) since this field also defaults to the “keyring.kyr” name. This is described in “Configuring a Domino server to use SSL” on page 33.

  By default the keyring file will be created on the *local* drive of the workstation used to submit the request. If you prefer, you can specify an network drive in this field. It is convenient to rename the keyring file as we describe since you can then keep copies of all server keyring files in a central place; the server’s name then helps to identify it. If you choose to create it and add certificates to it locally, it will be necessary later to copy it to the target server’s data drive

- **Key ring password**:

Specify and verify (by entering the password in the verification field) the server keyring file's password. Be sure to record the password since it will be necessary to supply the keyring password when adding certificates to it. Note that you will not need to supply the password to the server directly since it is stored in a "stash" file. The name of the stash file is the same as the keyring file with the extension ".sth". It must always be copied with the keyring file. Note that it should be protected from unauthorized access since, although the password is altered to protect it from casual access, *it is not encrypted.*

- **Key size**:

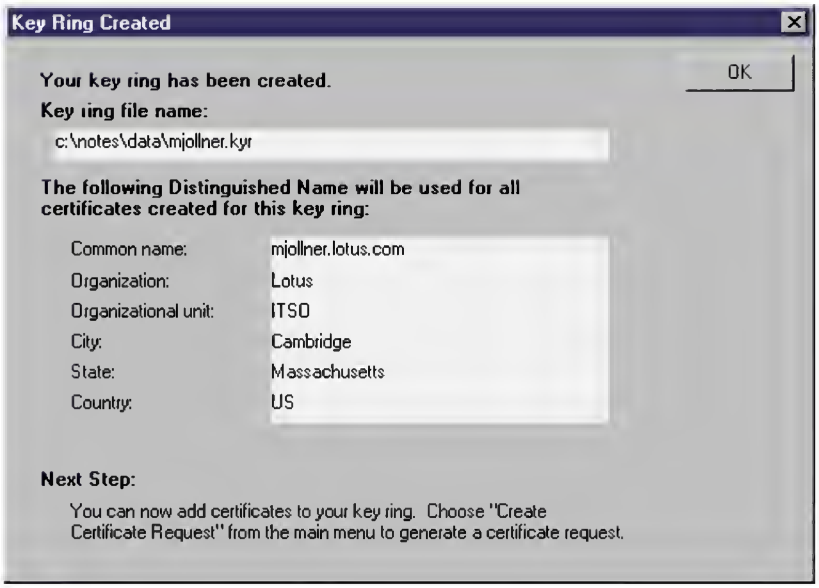
  Choose either 512 bit or 1024 bits for the public private key pair sizes. We chose 1024 bits. It is now legal to use 1024 bits for international servers.

- **Distinguished name**:

  Fill out the distinguished name in the bottom field. Ensure that the server's common name is filled out with its DNS name and *not* its Notes server name. The DNS name is the host name (for example, www.yourserver.com) that is specified in a URL to locate your server. This is recommended since some browsers compare the common name in the certificate to the hostname in the URL to access the server and will display a security warning to the client that the server's certificate may have been copied from its intended site.

  The distinguished name will show in the "subject" field of the server's certificate when examined.

Press the "**Create Key Ring**" button. The keyring file with a public-private key pair will be created and stored on a local (usually \Lotus\Notes\Data) disk of the workstation from which the request was submitted, and *not* the target server. You will receive a confirmation panel (Figure 10 on page 15) allowing you to confirm that the data has been entered and stored correctly.


Key Ring Created

Your key ring has been created.

Key ring file name:

c:\notes\data\mjollner.kyr

The following Distinguished Name will be used for all certificates created for this key ring:

Common name:	mjollner.lotus.com
Organization:	Lotus
Organizational unit:	ITSO
City:	Cambridge
State:	Massachusetts
Country:	US

Next Step:

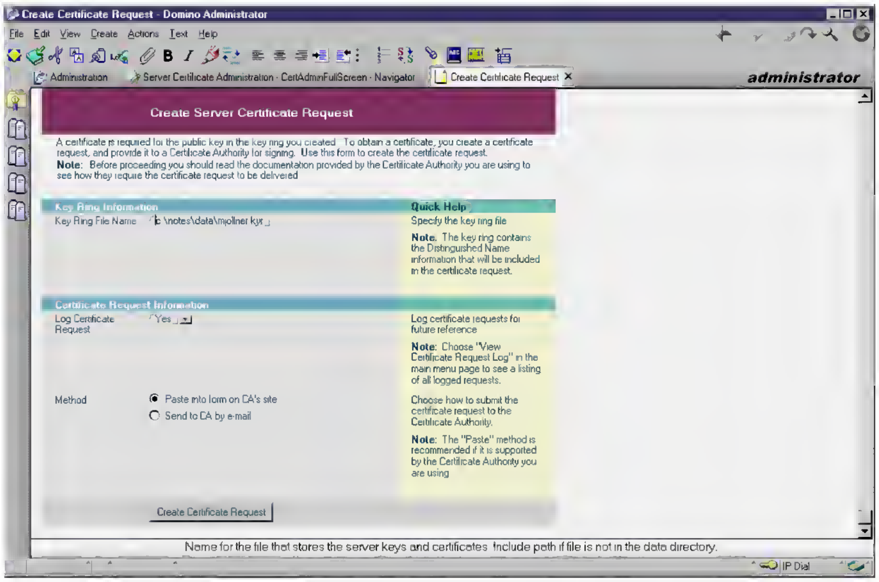
You can now add certificates to your key ring. Choose "Create Certificate Request" from the main menu to generate a certificate request.

Figure 10. Confirmation of server keyring file creation

We now have a public-private key pair in a keyring file. Since the public key is unsigned, the next step is to request a certificate authority to certify the public key. (The private key *never* leaves the keyring file). Press **OK** to return to the server certificate administration database main menu.

1.2.2 Requesting a server certificate from a Certificate Authority

You should be on the main menu of the server certificate administration database as shown in Figure 8 on page 11. Select option 2 “**Create Certificate Request**“ by double clicking on the menu item and fill out the certificate request panel as shown in Figure 11 on page 16.


Create Certificate Request - Domino Administrator
File Edit View Create Actions Text Help
Administration
Server Certificate Administration - CertAdminFullScreen - Navigator
Create Certificate Request
administrator
Create Certificate Request
IP Dial

Create Server Certificate Request

A certificate is required for the public key in the key ring you created. To obtain a certificate, you create a certificate request, and provide it to a Certificate Authority for signing. Use this form to create the certificate request.
Note: Before proceeding you should read the documentation provided by the Certificate Authority you are using to see how they require the certificate request to be delivered

Key Ring Information

Key Ring File Name: c:\notes\data\mjollner.kyr

Quick Help

Specify the key ring file

Note. The key ring contains the Distinguished Name information that will be included in the certificate request.

Certificate Request Information

Log Certificate Request: Yes

Log certificate requests for future reference

Note: Choose "View Certificate Request Log" in the main menu page to see a listing of all logged requests.

Method:
● Paste into form on CA's site
○ Send to CA by e-mail

Choose how to submit the certificate request to the Certificate Authority.

Note: The "Paste" method is recommended if it is supported by the Certificate Authority you are using

Create Certificate Request

Name for the file that stores the server keys and certificates. Include path if file is not in the data directory.

Figure 11. Requesting a certificate for the server's public key

Fill out the fields on this panel:

- **Key ring file name**:

  Confirm that the correct keyring file is filled in; by default, this will be the keyring file just created, but you can substitute another if wished.

- **Log certificate request**:

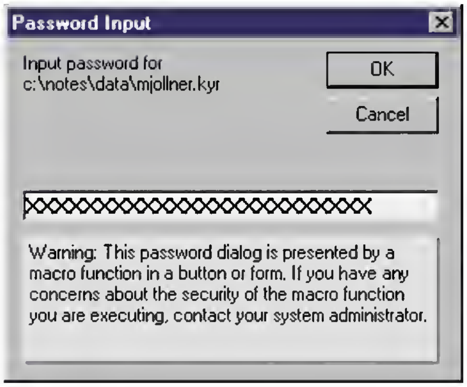
  If you specify (or retain the default) "**yes**", a copy of your request will be kept in the server certificate administration database for later reference. You can access logged requests in the server certificate administration database by clicking on "View Certificate Request Log" in the bottom menu item in the left pane of the main menu as shown in Figure 8 on page 11; a view of all certificate requests will be presented. (Usually there is only one request logged). You can then open the request and view the content of the request including the distinguished name and public key submitted.

- **Method**:

  You can chose to paste the server's SSL public key into a form on the CA site or to e-mail it to the CA site. Most CA sites prefer that you paste the key into a form on their site.

In our example, we chose to paste the request into a form on the certificate authority site since the Domino CA supports this method of requesting certificates.

Press “**Create Certificate Request**” at the bottom of the panel. You will receive a prompt (shown in Figure 12 on page 17) to enter the password to open the server’s keyring file so that its public key can be read. (This is the password that was created and entered in Figure 9 on page 13).



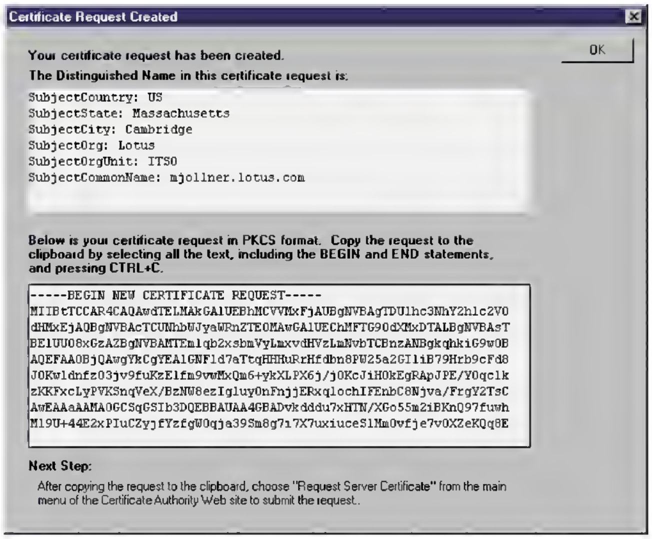
Input password for
c:\notes\data\mjollner.kyr

XXXXXXXXXXXXXXXXXXXXXXXX

Warning: This password dialog is presented by a macro function in a button or form. If you have any concerns about the security of the macro function you are executing, contact your system administrator.

Figure 12. Entering the server keyring file password

Enter the server keyring file’s password and press **OK**. You will receive a confirmation panel as shown in Figure 13 on page 18.



Your certificate request has been created.

The Distinguished Name in this certificate request is:

```
SubjectCountry: US
SubjectState: Massachusetts
SubjectCity: Cambridge
SubjectOrg: Lotus
SubjectOrgUnit: ITSO
SubjectCommonName: mjollner.lotus.com
```

Below is your certificate request in PKCS format. Copy the request to the clipboard by selecting all the text, including the BEGIN and END statements, and pressing CTRL+C.

```
-----BEGIN NEW CERTIFICATE REQUEST-----
MIIBtTCCAR4CAQAwdTELMAkGA1UEBhMCVVMxFjAUBgNVBAgTDUlhc3NhY2hlc2V0
dHMxEjAQBgNVBAcTCUNhbWJyaWRnZTEOMAwGA1UEChMFTG90dXMxDTALBgNVBAsT
BE1UU08xGzAZBgNVBAMTEmlqb2xsbmVyLmxvdHVzLmNvbTCBnzANBgkqhkiG9w0B
AQEFAA0BjQAwgYkCgYEA1GNF1d7aTtqHHHuRrHfdbn8PW25a2GI1iB79Hrb9cFd8
J0Kwldnfz03jv9fuKzE1fm9vwMxQm6+ykXLPX6j/j0KcJiH0kEgRApJPE/Y0qclk
zKKFxcLyPVKSnqVeX/BzNW8ezIgluy0nFnjjERxqlochIFEnbC8Njva/FrgY2TsC
AwEAAaAAMA0GCSqGSIb3DQEBBAUAA4GBADvkdddu7xHTN/XGo55m2iBKnQ97fuwh
M19U+44E2xPIuCZyjfYzfgW0qja39Sm8g7i7X7uxiuceS1Mm0vfje7v0XZeKQq8E
```

Next Step:

After copying the request to the clipboard, choose "Request Server Certificate" from the main menu of the Certificate Authority Web site to submit the request..

Figure 13. Server certificate request confirmation panel

Your distinguished name as it will appear in the certificate is displayed in the top pane for confirmation. You must now select all of the text in the bottom pane and copy it to the clipboard (you may need to scroll the display to capture all the text). You *must* include the "Begin New Certificate Request" and "End New Certificate Request" lines for the request to be valid. Press **OK** to be returned to the server certificate administration main menu.

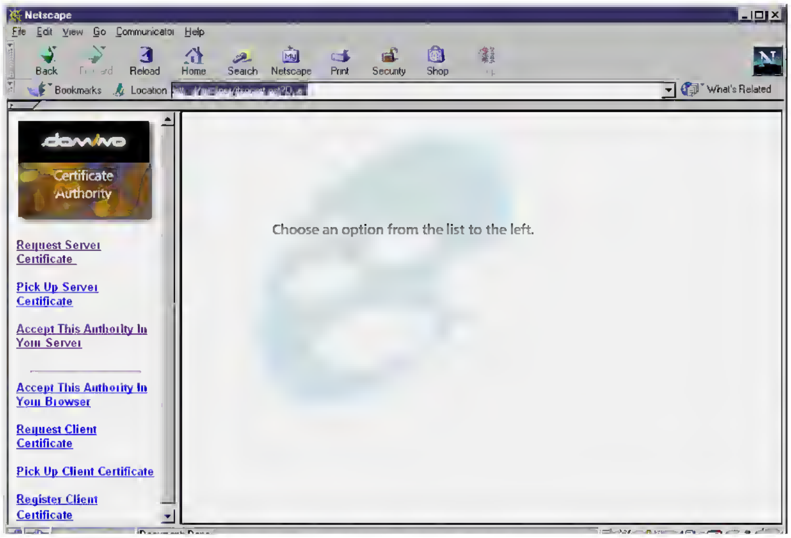
You can now request a server certificate from a certification authority.

Open a browser (we used Netscape 4.7 for our testing) and point it to the Domino Certificate Authority database created in "Creating and configuring a Domino certificate authority database" on page 3 by typing in the appropriate URL for your server and CA file name. In our example, we used

```
http://mjollner.lotus.com/itsocert.nsf?Open
```

You will need to substitute these values with your own site's host name and certification authority file name.

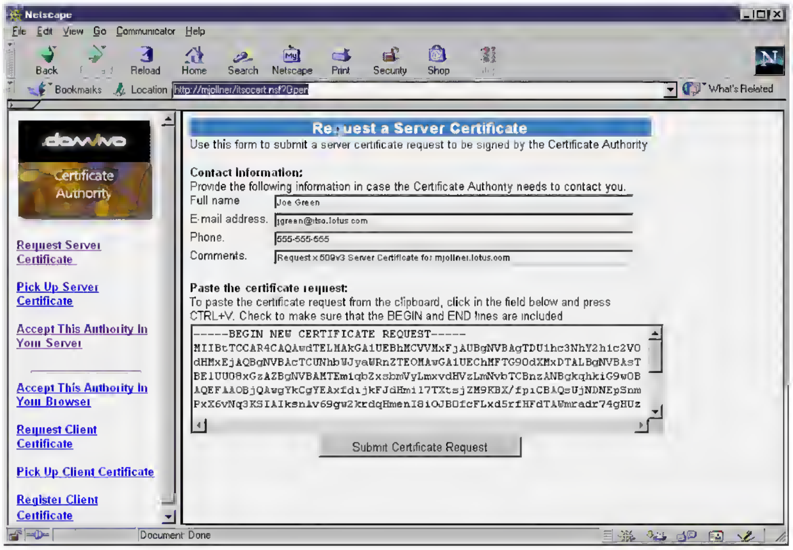
You should see the CA database with a menu to select certification authority actions as shown in Figure 14 on page 19.


Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location
What's Related
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

Choose an option from the list to the left.

Figure 14. Domino Certificate Authority main menu viewed in a browser

Select "**Request a Server Certificate**" from the menu on the left. You will be presented with a form to paste the server's public key from the clipboard as shown in Figure 15:


Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location http://mjollner/itsocert.nsf?Open
What's Related
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

Request a Server Certificate

Use this form to submit a server certificate request to be signed by the Certificate Authority

Contact Information:

Provide the following information in case the Certificate Authority needs to contact you.

Full name: Joe Green

E-mail address: jgreen@itso.lotus.com

Phone: 555-555-555

Comments: Request x.509v3 Server Certificate for mjollner.lotus.com

Paste the certificate request:

To paste the certificate request from the clipboard, click in the field below and press CTRL+V. Check to make sure that the BEGIN and END lines are included

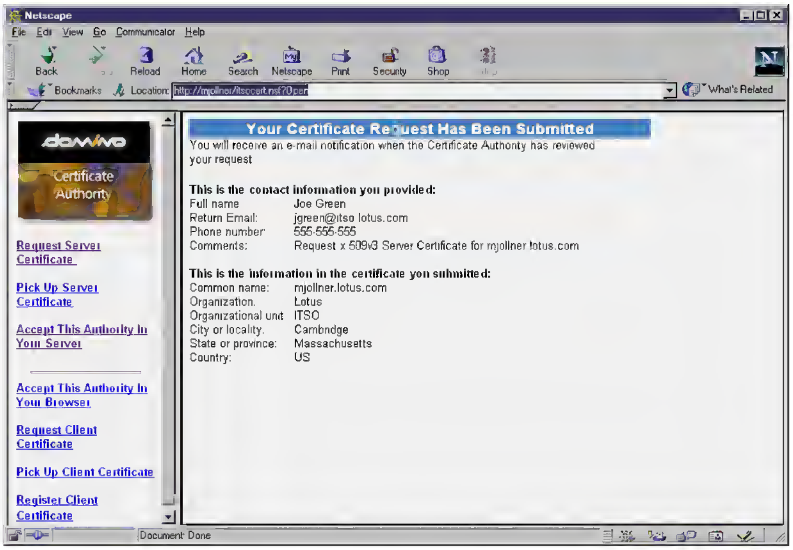
```
-----BEGIN NEW CERTIFICATE REQUEST-----
MIIBtTCCAR4CAQAwdTELMAkGA1UEBhMCVVMxFjAUBgNVBAgTDU1hc3NhY2h1c2V0
dHMxEjAQBgNVBAcTCUNhbWJyaWRnZTEOMAwGA1UEChMFTG90dXMxDTALBgNVBAsT
BE1UU08xGzAZBgNVBAMTEm1qbZxsbmVyLmxvdHVzLmNvbTCBnzANBgkqhkiG9w0B
AQEFAAOBjQAwgYkCgYEAxfd1jkFJdHm117TXtsjZM9KBX/fp1CBAQsUjNDNEpSnm
PxX6vNq3KSIAIksnAv69gw2krdqHmenI8iOJB0fcFLxd5rfHFdTAWmradr74gHUz
```

Submit Certificate Request

Figure 15. Submitting the server's public key to request a server certificate

Enter any information you wish in the “Contact Information” and paste the server’s public key (which was placed on the clipboard in Figure 11 on page 16) into the field on the lower half of the panel.

Press the button marked “**Submit Certificate Request**”. You will receive the confirmation panel shown in Figure 16 on page 20.


Netscape
File Edit View Go Communicator Help
Back
Reload
Home
Search
Netscape
Print
Security
Shop
Bookmarks
Location: http://mjollner/itsocert.nsf?Open
What's Related
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

Your Certificate Request Has Been Submitted

You will receive an e-mail notification when the Certificate Authority has reviewed your request

This is the contact information you provided:

Full name	Joe Green
Return Email:	jgreen@itso.lotus.com
Phone number	555-555-555
Comments:	Request x 509v3 Server Certificate for mjollner.lotus.com

This is the information in the certificate you submitted:

Common name:	mjollner.lotus.com
Organization.	Lotus
Organizational unit	ITSO
City or locality.	Cambridge
State or province:	Massachusetts
Country:	US

Figure 16. Confirmation of server certificate request

The request has been created in the Domino Certificate Authority database for administrator approval. When you are notified that it has been approved you can pick up the certified public key and merge it into your server keyring file.

We will show the actions to approve the certificate in the Certificate Authority database in Figure 1.2.4.1 on page 25.

You now need to add the certificate Authority’s public key into the server’s keyring. This should in any case be done before adding the server’s approved certificate to the server’s keyring.

1.2.3 Merging the Certificate Authority’s certificate into the server keyring

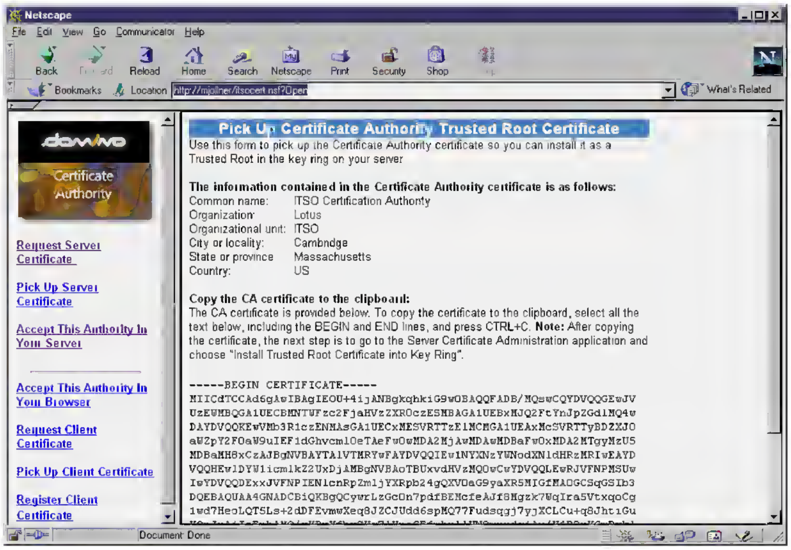
This step is necessary to build a chain of trust starting at the certificate authority’s root certifier. By doing this you are setting up a trust relationship: your server will accept any certificates signed by this CA. Using your browser, connect to the certificate authority with the URL for your CA server and database as shown in Figure 14 on page 19.

Click on “**Accept this authority in your server**”. You will be presented with a panel allowing you to copy the CA’s certificate to the clipboard as shown in Figure 17 on page 22. You will install this in your server’s keyring file flagged as a “trusted root”. Note that by default your keyring file will have a number of common CA certificates flagged as “trusted root”; if you are applying for a certificate from one of these authorities you may not need to perform this step.

Domino includes several trusted root certificates by default when you create a server key ring file. You do not need to merge a third-party CA's certificate as a trusted root if it exists in the key ring file by default. The trusted roots (as described in the Domino Administration Help) are shown in Table 1:

Table 1. Default Trusted Root Certificates in a Domino server keyring

Trusted root certificate name	Organization	Organizational Unit	Coun try
VeriSign Class 4 Public Primary Certification Authority	VeriSign, Inc.	Class 4 Public Primary Certification Authority	US
VeriSign Class 3 Public Primary Certification Authority	VeriSign, Inc.	Class 3 Public Primary Certification Authority	US
VeriSign Class 2 Public Primary Certification Authority	VeriSign, Inc.	Class 2 Public Primary Certification Authority	US
VeriSign Class 1 Public Primary Certification Authority	VeriSign, Inc.	Class 1 Public Primary Certification Authority	US
RSA Secure Server Certificate Authority	RSA Data Security, Inc.	Secure Server Certification Authority	US
Netscape Test Certificate Authority	Netscape Communications Corp.	Test CA	US
RSA Low Assurance Certificate Authority	RSA Data Security, Inc.	Low Assurance Certification Authority	US
VeriSign Persona Certificate Authority	RSA Data Security, Inc	Persona Certificate	US



Request Server Certificate

Pick Up Server Certificate

Accept This Authority In Your Server

Accept This Authority In Your Browser

Request Client Certificate

Pick Up Client Certificate

Register Client Certificate

Pick Up Certificate Authority Trusted Root Certificate

Use this form to pick up the Certificate Authority certificate so you can install it as a Trusted Root in the key ring on your server

The information contained in the Certificate Authority certificate is as follows:

Common name:	ITSO Certification Authority
Organization:	Lotus
Organizational unit:	ITSO
City or locality:	Cambridge
State or province	Massachusetts
Country:	US

Copy the CA certificate to the clipboard:

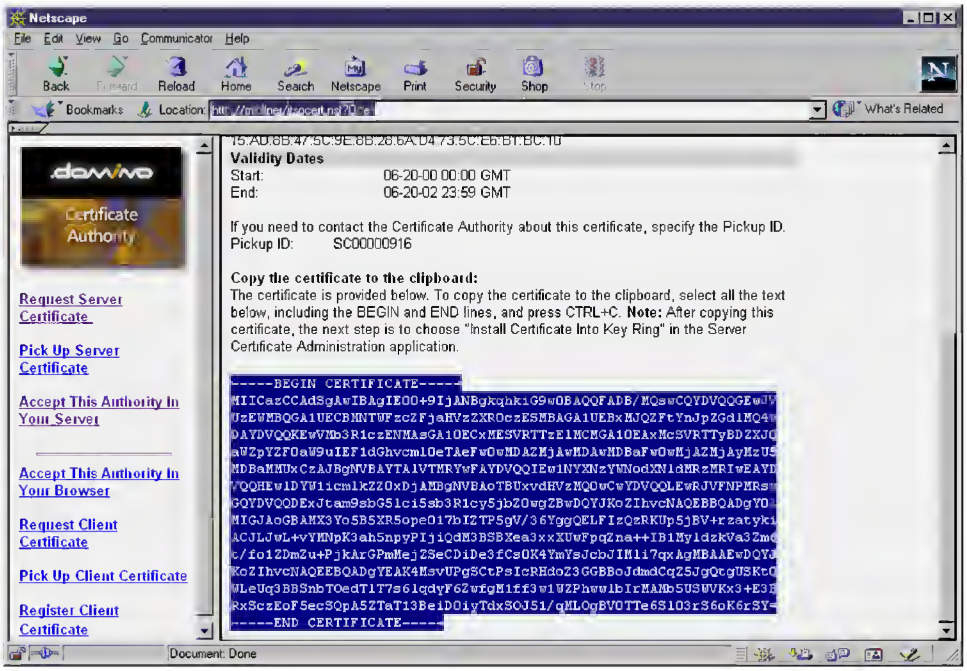
The CA certificate is provided below. To copy the certificate to the clipboard, select all the text below, including the BEGIN and END lines, and press CTRL+C. **Note:** After copying the certificate, the next step is to go to the Server Certificate Administration application and choose "Install Trusted Root Certificate into Key Ring".

```
-----BEGIN CERTIFICATE-----
MIICdTCCAd6gAwIBAgIEOU+4ijANBgkqhkiG9w0BAQQFADB/MQswCQYDVQQGEwJV
UzEWMBQGA1UECBMNTWFzc2FjaHVzZXR0czESMBAGA1UEBxMJQ2FtYnJpZGdlMQ4w
DAYDVQQKEwVMb3R1czENMAsGA1UECxMESVRTTzE1MCMGA1UEAxMcSVRTTyBDZXJ0
aWZpY2F0aW9uIEF1dGhvcml0eTAeFw0wMDA2MjAwMDAwMDBaFw0xMDA2MTgyMzU5
MDBaMH8xCzAJBgNVBAYTAlVTMRYwFAYDVQQIEw1NYXNzYWNodXNldHRzMRIwEAYD
VQQHEwlDYW1icmlkZ2UxDjAMBgNVBAoTBUxvdHVzMQ0wCwYDVQQLEwRJVFNPMSUw
IwYDVQQDExxJVFNPIENlcnRpZmljYXRpb24gQXV0aG9yaXR5MIGfMA0GCSqGSIb3
DQEBAQUAA4GNADCBiQKBgQCywrLzGcOn7pdfBEMcfeAJf8Mgzk7WqIra5VtxqoCg
1wd7HeoLQTSLs+2dDFEvmwXeq8JZCJUdd6spMQ77Fudsqgj7yjXCLCu+q8JhtiGu
```

Figure 17. Picking up Certificate Authority's Trusted Root Certificate

Select the certificate information on the browser panel by selecting it with your mouse cursor. Copy the certificate to the clipboard by pressing **Ctrl-C** or selecting **Edit-Copy** from the window menu.

The marked text should be highlighted as shown in Figure 18 on page 23. Be sure to select the two lines "Begin Certificate" and "End Certificate" as well as the certificate text.


Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: What's Related
domino
Certificate Authority

Request Server Certificate

Pick Up Server Certificate

Accept This Authority In Your Server

Accept This Authority In Your Browser

Request Client Certificate

Pick Up Client Certificate

Register Client Certificate

15:AD:8B:47:5C:9E:8B:28:6A:D4:73:5C:E6:B1:BC:10

Validity Dates

Start: 06-20-00 00:00 GMT
End: 06-20-02 23:59 GMT

If you need to contact the Certificate Authority about this certificate, specify the Pickup ID.
Pickup ID: SC00000916

Copy the certificate to the clipboard:
The certificate is provided below. To copy the certificate to the clipboard, select all the text below, including the BEGIN and END lines, and press CTRL+C. **Note:** After copying this certificate, the next step is to choose "Install Certificate Into Key Ring" in the Server Certificate Administration application.

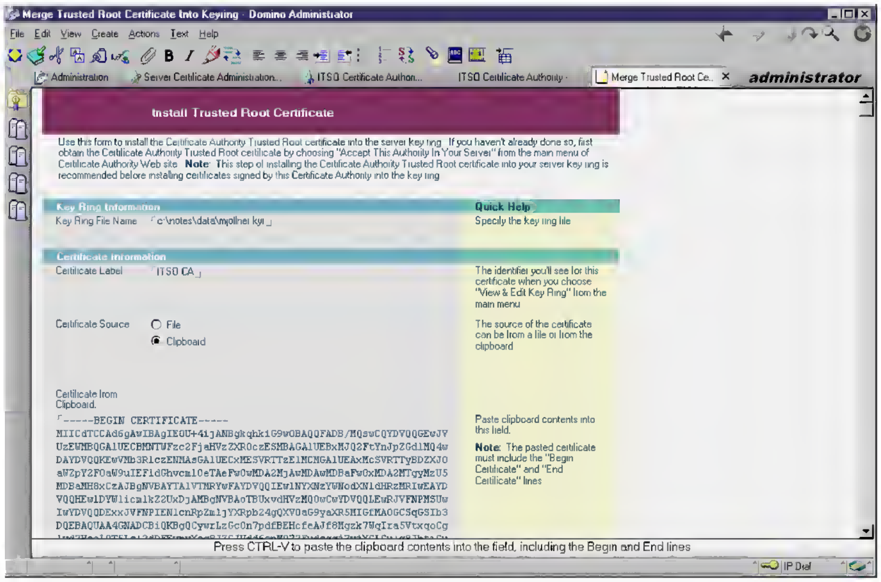
```
-----BEGIN CERTIFICATE-----
MIICazCCAdSgAwIBAgIE00+9IjANBgkqhkiG9w0BAQQFADB/MQswCQYDVQQGEw
UzEWMBQGA1UECBMNTWFzcZFjaHVzZXR0czESMBAGA1UEBxMJQZFtYnJpZGd1MQ4
DAYDVQQKEwVMb3R1czENMAsGA1OECxMESVRTTzE1MCMGA10EAxMcSVRTTyBDZXJQ
aWZpYZF0aW9uIEF1dGhvcml0eTAeFw0wMDAZMjAwMDAwMDBaFw0wMjAZMjAyMzU5
MDBaMMUxCzAJBgNVBAYTAlVTMRYwFAYDVQQIEw1NYXNzYWNodXN1dMRzMRIwEAYD
VQQHEw1DYW1icmlkZZ0xDjAMBgNVBAoTBUxvdHVzMQ0wCwYDVQQLEwRJVFNPMRs
GQYDVQQDExJtam9sbG5lci5sb3R1cy5jbZ0wgZBwDQYJKoZIhvcNAQEBBQADgYO
MIGJAoGBAMX3Yo5B5XR5opeO17bIZTP5gV/36YggQELFIzQzRKUp5jBV+rzatyki
ACJLJwL+vYMNpK3ah5npyPIjiQdM3BSBXea3xxXUwFpqZna++IB1MyldzkVa3Zm
t/fo1ZDmZu+PjkArGPmMejZSeCDiDe3fCs0K4YmYsJcbJIM1i7qxAgMBAAEwDQYJ
KoZIhvcNAQEEBQADgYEAK4MsvUPgSCtPsIcRHdoZ3GGBBoJdmdCqZ5JgQtgUSKtC
WLeUq3BBSnbTOedT1T7s61qdyF6ZwfgM1ff3w1WZPhwwlbIrMAMb5USWVKx3+E3E
RxSczEoF5ecSQpA5ZTaT13BeiD0iyTdxSOJ51/qMLOgBVOTTe6S103rS6oK6rSY=
-----END CERTIFICATE-----
```

Document: Done

Figure 18. Selecting CA trusted root certificate to copy it to the clipboard

Open the Server Certificate Administration database created in “Requesting and installing a Server Certificate” on page 10. Select option 3 “**Install Trusted Root Certificate into Key Ring**“. You will be presented with a panel with a field to allow you to paste the CA trusted root certificate into the form from the clipboard.

Ensure that the keyring file in the keyring file name field is the one for the server. Note that the keyring file must be on (or accessible to) the workstation submitting the request. You can enter an (optional) label for the Certificate Authority to allow you to identify it when examining the server’s keyring in future. Specify clipboard as the certificate source and paste the certificate into the bottom field as shown in Figure 19 on page 24.



Merge Trusted Root Certificate Into Keyring - Domino Administrator
File Edit View Create Actions Text Help
Administration
Server Certificate Administration..
ITSO Certificate Authori...
ITSO Certificate Authority -
Merge Trusted Root Ce..
administrator
IP Dial

Install Trusted Root Certificate

Use this form to install the Certificate Authority Trusted Root certificate into the server key ring. If you haven't already done so, first obtain the Certificate Authority Trusted Root certificate by choosing "Accept This Authority In Your Server" from the main menu of Certificate Authority Web site. **Note**: This step of installing the Certificate Authority Trusted Root certificate into your server key ring is recommended before installing certificates signed by this Certificate Authority into the key ring.

Key Ring Information

Key Ring File Name: c:\notes\data\mjollner.kyr

Certificate Information

Certificate Label: ITSO CA

Certificate Source: ○ File ● Clipboard

Certificate from Clipboard:

```
-----BEGIN CERTIFICATE-----
MIICdTCCAd6gAwIBAgIEOU+4ijANBgkqhkiG9w0BAQQFADB/MQswCQYDVQQGEwJV
UzEWMBQGA1UECBMNTWFzc2FjaHVzZXR0czESMBAGA1UEBxMJQ2FtYnJpZGdlMQ4w
DAYDVQQKEwVMb3RlczENMAsGA1UECxMESVRTTzE1MCMGA1UEAxMcSVRTTyBDZXJ0
aWZpY2F0aW9uIEF1dGhvcml0eTAeFw0wMDA2MjAwMDAwMDBaFw0xMDA2MTgyMzU5
MDBaMH8xCzAJBgNVBAYTAlVTMRYwFAYDVQQIEw1NYXNzYWNodXNldHRzMRIwEAYD
VQQHEwlDYW1icmlkZ2UxDjAMBgNVBAoTBUxvdHVzMQ0wCwYDVQQLEwRJVFNPMSUw
IwYDVQQDExxJVFNPIENlcnRpZmljYXRpb24gQXV0aG9yaXR5MIGfMA0GCSqGSIb3
DQEBAQUAA4GNADCBiQKBgQCywrLzGcOn7pdfBEHcfeAJf8Mgzk7WqIra5VtxqoCg
```

Quick Help

Specify the key ring file

The identifier you'll see for this certificate when you choose "View & Edit Key Ring" from the main menu

The source of the certificate can be from a file or from the clipboard

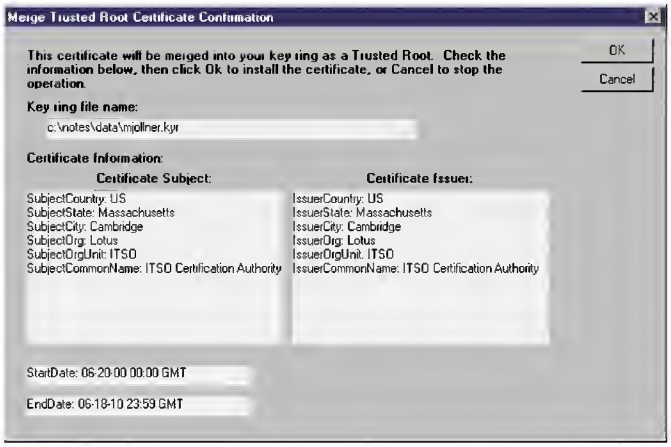
Paste clipboard contents into this field.

Note: The pasted certificate must include the "Begin Certificate" and "End Certificate" lines

Press CTRL-V to paste the clipboard contents into the field, including the Begin and End lines

Figure 19. Pasting Certificate Authority trusted root certificate into Server Certificate Administration database

Press the button "**Install Trusted Root Certificate**" at the bottom of the panel. After entering the server's keyring password as shown in Figure 12 on page 17, you will receive the confirmation panel shown in Figure 20:



This certificate will be merged into your key ring as a Trusted Root. Check the information below, then click Ok to install the certificate, or Cancel to stop the operation.

Key ring file name:

c:\notes\data\mjollner.kyr

Certificate Information:

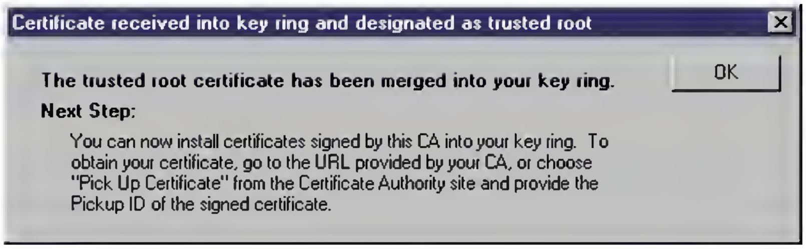
Certificate Subject:	**Certificate Issuer:**
SubjectCountry: US	IssuerCountry: US
SubjectState: Massachusetts	IssuerState: Massachusetts
SubjectCity: Cambridge	IssuerCity: Cambridge
SubjectOrg: Lotus	IssuerOrg: Lotus
SubjectOrgUnit: ITSO	IssuerOrgUnit: ITSO
SubjectCommonName: ITSO Certification Authority	IssuerCommonName: ITSO Certification Authority

StartDate: 06-20-00 00:00 GMT

EndDate: 06-18-10 23:59 GMT

Figure 20. Merging CA trusted root certifier into server keyring file

Press **OK**. You will be presented with a final information panel once the trusted root certificate is merged into the key ring. This is shown in Figure 21 on page 25.



Certificate received into key ring and designated as trusted root

The trusted root certificate has been merged into your key ring.

Next Step:

You can now install certificates signed by this CA into your key ring. To obtain your certificate, go to the URL provided by your CA, or choose "Pick Up Certificate" from the Certificate Authority site and provide the Pickup ID of the signed certificate.

Figure 21. Confirmation of CA trusted root certificate merge into server keyring

The certificate authority trusted root certificate has now been merged into your keyring. You can examine it and other certificates in your keyring and remove the “trusted root” designation or delete it at a future date by selecting “View and edit key rings” from the server certificate administration database main menu.

This completes addition of the CA trusted root certifier to the server’s keyring.

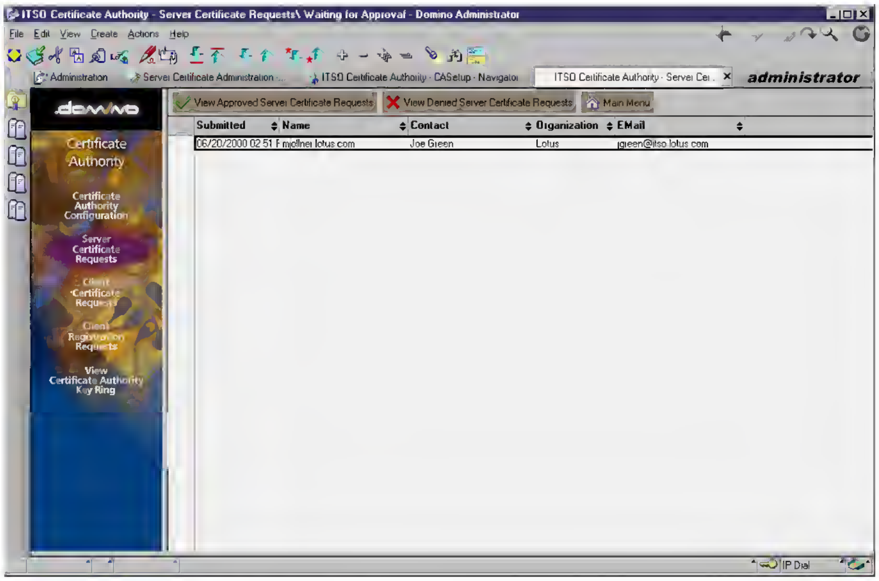
1.2.4 Install certificate into keyring

This step follows approval of the server’s certificate request which was created as described in “Requesting a server certificate from a Certificate Authority” on page 15. In general, the request would be to a external certificate authority whose processes would not be visible to the requestor. Since we are using the Domino certificate authority, we will also show the steps to approve a server certificate request. The subsequent process to “pick up” the certificate in a browser will be same whether the Domino CA or an external CA is used.

1.2.4.1 Approving server certificate request in the Domino CA

Open the Domino certificate authority database to the main menu as shown in Figure 3 on page 5 and select “**Server Certificate Requests**” from the menu on the left pane.

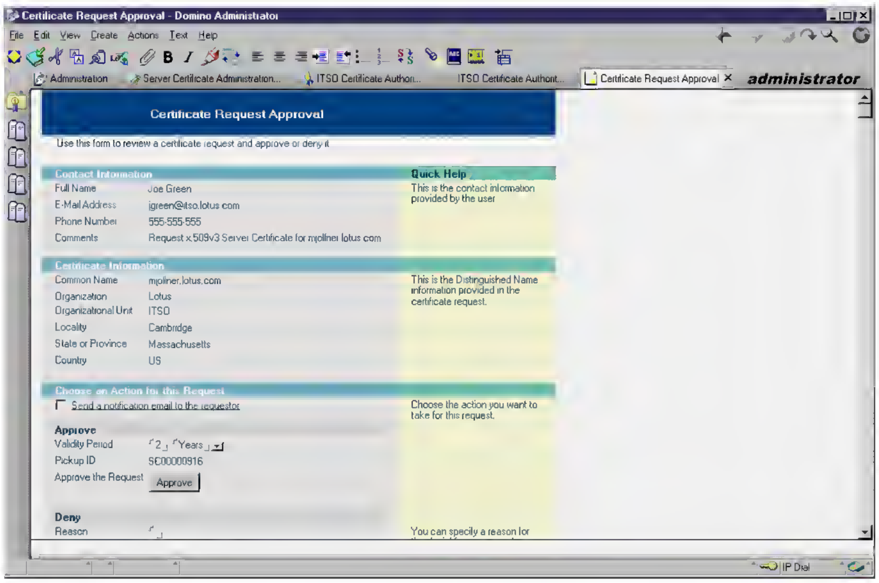
You will be presented with a view showing all outstanding requests as shown in Figure 22 on page 26.


ITSO Certificate Authority - Server Certificate Requests\ Waiting for Approval - Domino Administrator
File Edit View Create Actions Help
Administration
Server Certificate Administration ...
ITSO Certificate Authority - CASetup - Navigator
ITSO Certificate Authority - Server Cer...
administrator
domino
Certificate Authority
Certificate Authority Configuration
Server Certificate Requests
Client Certificate Requests
Client Registration Requests
View Certificate Authority Key Ring
View Approved Server Certificate Requests
View Denied Server Certificate Requests
Main Menu
IP Dial

Submitted	Name	Contact	Organization	EMail
06/20/2000 02:51 F	mjollner.lotus.com	Joe Green	Lotus	jgreen@itso.lotus.com

Figure 22. Server Certification requests awaiting approval

Select the server certification request (there is only one in our example) and open the document. The request will be displayed ready for approval or denial as shown in Figure 23 on page 27. This is the same request we created and submitted from a browser in Figure 15 on page 19 and received confirmation of submission in Figure 16 on page 20.


Certificate Request Approval - Domino Administrator
File Edit View Create Actions Text Help
Administration
Server Certificate Administration...
ITSO Certificate Author...
ITSO Certificate Authorit...
Certificate Request Approval
administrator
IP Dial

Certificate Request Approval

Use this form to review a certificate request and approve or deny it

Contact Information		Quick Help
Full Name	Joe Green	This is the contact information provided by the user
E-Mail Address	jgreen@itso.lotus com	
Phone Number	555-555-555	
Comments	Request x.509v3 Server Certificate for mjollner lotus com	

Certificate Information		
Common Name	mjollner.lotus.com	This is the Distinguished Name information provided in the certificate request.
Organization	Lotus	
Organizational Unit	ITSO	
Locality	Cambridge	
State or Province	Massachusetts	
Country	US	

Choose an Action for this Request

□ Send a notification email to the requestor

Choose the action you want to take for this request.

Approve

Validity Period	2 Years
Pickup ID	SC00000916
Approve the Request	Approve

Deny

Reason

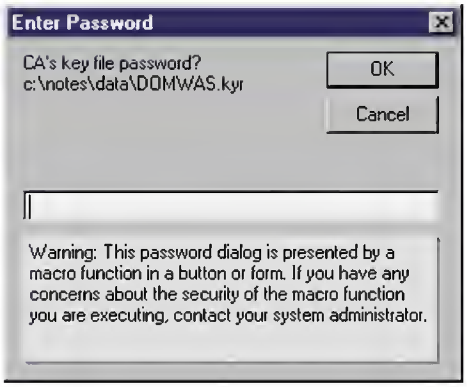
You can specify a reason for

Figure 23. Certificate authority showing server certificate request

There are only three fields on this form that may requiring entry:

1. A check box "**Send a notification e-mail to the requestor**". If you check this (it will be checked by default if you specified this in the CA profile defaults as shown in Figure 6 on page 8 and described in the field "Mail confirmation of signed certificate to requestor:" on page 9). Confirmation could also be sent by telephone or a separately composed e-mail, but the requestor will have to be given a key to access their certificate. This is called a "Pick Up ID" key and is typically 10 alphanumeric characters so it may not lend itself to a voice communication.
2. **Validity Period**: the period (beginning at 0:00 UT on the day of approval) of validity of the certificate in years or days. You can change this default (again, derived from the CA profile) if you wish.
3. **Reason**: this is field which you can fill out with a reason if you chose to deny the request.

Once you are satisfied the request is valid, press the "**Approve**" button in the approve section. You will be prompted for the certificate authority's keyring file password as shown in Figure 24 on page 28 so that it can be opened to retrieve the CA's private key to sign the certificate request.



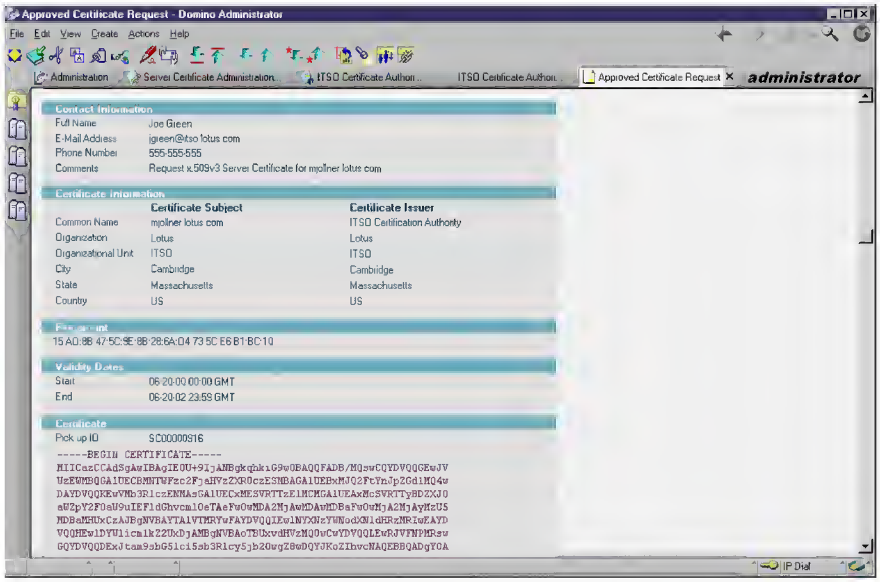
CA's key file password?
c:\notes\data\DOMWAS.kyr

Warning: This password dialog is presented by a macro function in a button or form. If you have any concerns about the security of the macro function you are executing, contact your system administrator.

Figure 24. Entering the certificate authority's key ring file password

You can view approved certificate requests by selecting "View approved Certificate requests" (button with a green check mark) from the view shown in Figure 22 on page 26.

The certificate we just approved is shown in Figure 25 on page 29; this would be useful to communicate any details (such as the Pick Up ID) to the server's administrator. In addition, you can select and copy the certificate information (including the BEGIN and END lines) to the clipboard so that you could copy it into an e-mail message to the server's administrator.



Approved Certificate Request - Domino Administrator
File Edit View Create Actions Help
Administration
Server Certificate Administration...
ITSO Certificate Authori...
ITSO Certificate Authori...
Approved Certificate Request
administrator
IP Dial

Contact Information

Full Name	Joe Green
E-Mail Address	jgreen@itso lotus com
Phone Number	555-555-555
Comments	Request x.509v3 Server Certificate for mjollner lotus com

Certificate Information

	Certificate Subject	Certificate Issuer
Common Name	mjollner lotus com	ITSO Certification Authority
Organization	Lotus	Lotus
Organizational Unit	ITSO	ITSO
City	Cambridge	Cambridge
State	Massachusetts	Massachusetts
Country	US	US

Fingerprint

15 A0:8B 47:5C:9E:8B:28:6A:04 73 5C E6 B1:BC:10

Validity Dates

Start	06-20-00 00:00 GMT
End	06-20-02 23:59 GMT

Certificate

Pick up ID SC00000916

```
-----BEGIN CERTIFICATE-----
MIICazCCAdSgAwIBAgIE0U+9IjANBgkqhkiG9w0BAQQFADB/MQswCQYDVQQGEwJV
UzEWMBQGA1UECBMNTWFzc2FjaHVzZXR0czESMBAGA1UEBxMJQ2FtYnJpZGdlMQ4w
DAYDVQQKEwVMb3RlczENMAsGA1UECxMESVRTTzE1MCMGA1UEAxMcSVRTTyBDZXJ0
aWZpY2F0aW9uIEF1dGhvcml0eTAeFw0wMDA2MjAwMDAwMDBaFw0wMjA2MjAyMzU5
MDBaMHUxCzAJBgNVBAYTAlVTMRYwFAYDVQQIEw1NYXNzYWNodXNldHRzMRIwEAYD
VQQHEwlDYW1icmlkZ2UxDjAMBgNVBAoTBUxvdHVzMQ0wCwYDVQQLEwRJVFNPMRsw
GQYDVQQDExJtam9sbG5lci5sb3Rlcy5jb20wgZ8wDQYJKoZIhvcNAQEBBQADgY0A
```

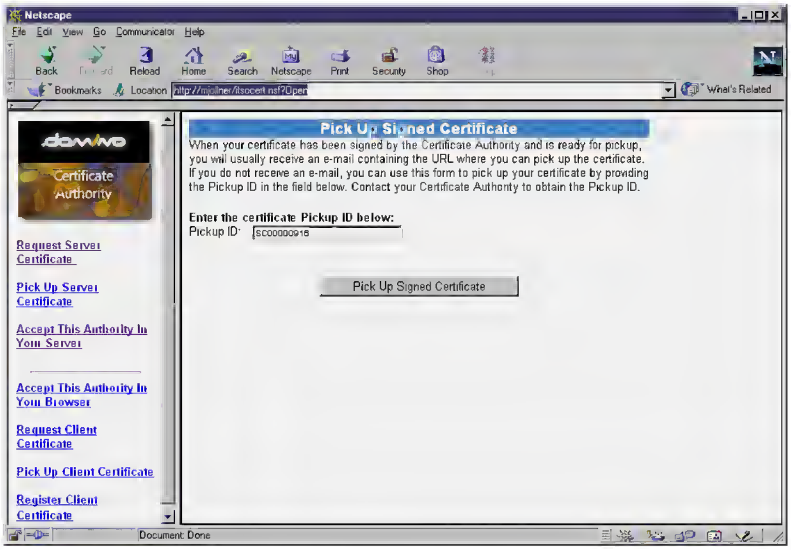
Figure 25. Approved server certificate request in the Domino CA database

This completes the certificate authority's administrator's actions to approve the server certificate; it is now ready for the server administrator to pick up the certificate using the Pick Up ID.

1.2.4.2 Installing the server's certificate into the server's keyring

Again, point a browser at the Domino certification authority database (or the external CA you chose to certify your public key) as shown in Figure 14 on page 19. Choose "Pick Up Server Certificate" from the menu on the left (it is the second item in our illustration). This will result in a pick up panel being displayed on the pane on the right of the screen as shown in Figure 26 on page 30.

If you received an e-mail notification that tells you that your certificate is approved and ready for pick up (we show you an example of a client certificate notification in Figure 50 on page 50). If so, it should have a URL to allow you to directly access your certificate ready for pick up; if so, simply use the URL; it should open to the pick up screen shown on Figure 27 on page 31.


Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop
Bookmarks Location http://mjollner/itsocert.nsf?Open
What's Related
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

Pick Up Signed Certificate

When your certificate has been signed by the Certificate Authority and is ready for pickup, you will usually receive an e-mail containing the URL where you can pick up the certificate. If you do not receive an e-mail, you can use this form to pick up your certificate by providing the Pickup ID in the field below. Contact your Certificate Authority to obtain the Pickup ID.

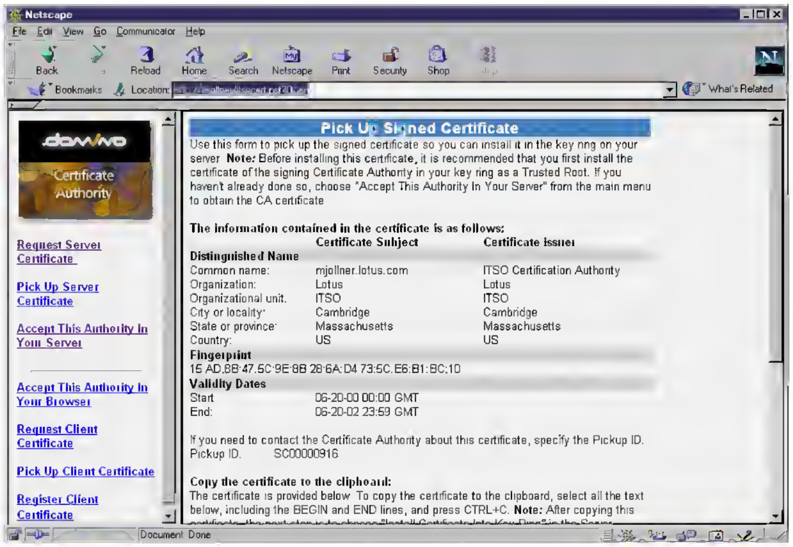
Enter the certificate Pickup ID below:

Pickup ID: SC00000916

Pick Up Signed Certificate

Figure 26. Entering Pick Up ID into Domino certificate authority

Enter the Pick Up ID in the field shown. If you received notification by e-mail it is most convenient to copy it to the clipboard and paste it into the field; otherwise type it into the field. Press “**Pick Up Signed Certificate**”. You will receive a confirmation panel from which you can then select the certificate and copy it to the clipboard. The confirmation panel is shown in Figure 27 on page 31.


Netscape
File Edit View Go Communicator Help
Back
Reload
Home
Search
Netscape
Print
Security
Shop
Bookmarks
Location:
What's Related
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document Done

Pick Up Signed Certificate

Use this form to pick up the signed certificate so you can install it in the key ring on your server **Note:** Before installing this certificate, it is recommended that you first install the certificate of the signing Certificate Authority in your key ring as a Trusted Root. If you haven't already done so, choose "Accept This Authority In Your Server" from the main menu to obtain the CA certificate

The information contained in the certificate is as follows:

	Certificate Subject	**Certificate Issuer**
Distinguished Name		
Common name:	mjollner.lotus.com	ITSO Certification Authority
Organization:	Lotus	Lotus
Organizational unit.	ITSO	ITSO
City or locality:	Cambridge	Cambridge
State or province:	Massachusetts	Massachusetts
Country:	US	US

Fingerprint
15 AD.8B:47.5C:9E:8B 28:6A:D4 73:5C.E6:B1:BC:10

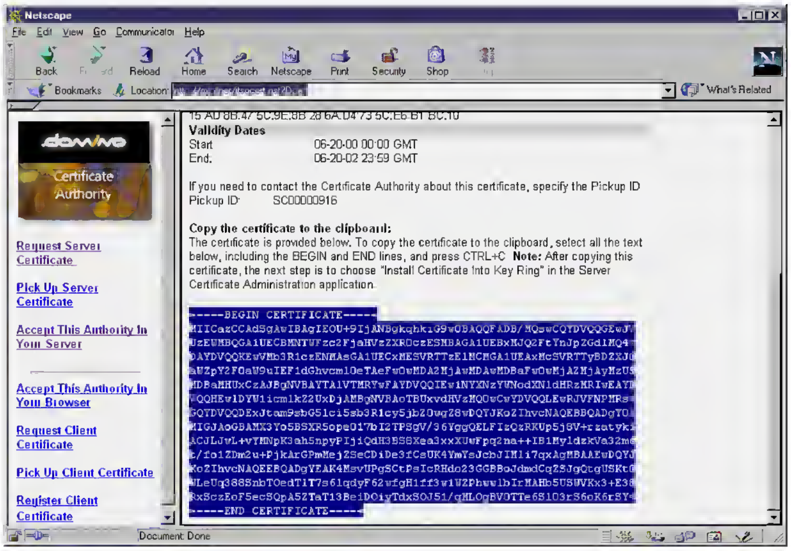
Validity Dates
Start 06-20-00 00:00 GMT
End: 06-20-02 23:59 GMT

If you need to contact the Certificate Authority about this certificate, specify the Pickup ID.
Pickup ID. SC00000916

Copy the certificate to the clipboard:
The certificate is provided below To copy the certificate to the clipboard, select all the text below, including the BEGIN and END lines, and press CTRL+C. **Note:** After copying this

Figure 27. Displaying approved certificate for Pick Up

Scroll down to display the certificate and select it (be sure to include the "Begin Certificate" and "End Certificate" lines) as shown in Figure 28:


Netscape
File Edit View Go Communicator Help
Back
Forward
Reload
Home
Search
Netscape
Print
Security
Shop
Bookmarks
Location:
What's Related
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document Done

15 AD 8B.47 5C.9E.8B 28 6A.D4 73 5C.E6 B1 BC.10

Validity Dates
Start 06-20-00 00:00 GMT
End: 06-20-02 23:59 GMT

If you need to contact the Certificate Authority about this certificate, specify the Pickup ID
Pickup ID: SC00000916

Copy the certificate to the clipboard:
The certificate is provided below. To copy the certificate to the clipboard, select all the text below, including the BEGIN and END lines, and press CTRL+C **Note:** After copying this certificate, the next step is to choose "Install Certificate Into Key Ring" in the Server Certificate Administration application.

```
-----BEGIN CERTIFICATE-----
MIICazCCAdSgAwIBAgIEOU+9IjANBgkqhkiG9w0BAQQFADB/MQswCQYDVQQGEwJ
UzEUMBQGA1UECBMNTWFzc2FjaHVzZXR0czESMBAGA1UEBxMJQ2FtYnJpZGdlMQ4
DAYDVQQKEwVMb3R1czENMAsGA1UECxMESVRTTzE1MCMGA1UEAxMcSVRTTyBDZXJ0
aWZpY2F0aW9uIEF1dGhvcml0eTAeFw0wMDA2MjAwMDAwMDBaFw0wMjA2MjAyMzU5
MDBaMHUxCzAJBgNVBAYTAlVTMRYwFAYDVQQIEw1NYXNzYWNodXNldHRzMRIwEAYD
VQQHEwlDYW1icmlkZ2UxDjAMBgNVBAoTBUxvdHVzMQ0wCwYDVQQLEwRJVFNPMRs
GQYDVQQDExJtam9sbG5lci5sb3R1cy5jb20wgZ8wDQYJKoZIhvcNAQEBBQADgY0
MIGJAoGBAMX3Yo5BSXR5ope017bI2TPSgV/36YggQELFIzQzRKUp5j8V+rzatyk
ACJLJvL+vYMNpK3ah5npyPIjiQdH3BS8Xea3xxXUwFpq2na++IB1Myldzkva32m
t/fo1ZDm2u+PjkArGPmMej2SeCDiDe3fCsUK4YmYsJcbJIMli7qxAgMBAAEwDQYJ
KoZIhvcNAQEEBQADgYEAK4MsvUPgSCtPsIcRHdo23GGBBoJdmdCq2SJgQtgUSKt
WLeUq388SnbTOedT1T7s61qdyF62wfgH1ff3w1W2Phww1bIrMAHb5USWVKx3+E3
RxSczEoF5ecSQpA5ZTaT13BeiDOiyTdxSOJ51/qMLOgBVOTTe6S103rS6oK6rSY
-----END CERTIFICATE-----
```

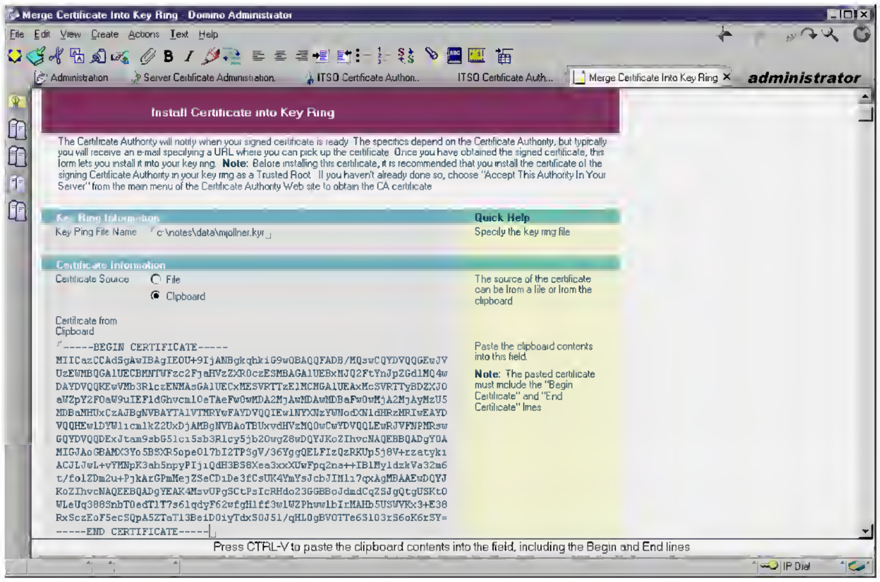
Figure 28. Selecting approved server certificate

Press **Ctrl-C** or select **Edit-Copy** from the window menu to copy the certificate to the clipboard.

Now open the server certificate administration database as shown in Figure 8 on page 11 and select “**Install Certificate into Key Ring**“. You will be presented with a panel with three fields that you should verify and change if necessary:

1. The server **keyring file name and pat**h. This will have the value last typed into the field (as, for example, when you originally created the request)
2. The **certificate label**. This is a label which you choose to allow you to identify the certificate if you later examine the keyring
3. The **certificate source** (file or clipboard). The default radio button is set to clipboard.

Finally, on the bottom of the panel there is a field (**Certificate from Clipboard**) for you to paste the certificate into. Select this field by clicking in it, and press **Ctrl-V** or **Edit-Paste** from the window menu. The resulting panel should resemble Figure 29:


Merge Certificate Into Key Ring - Domino Administrator
File Edit View Create Actions Text Help
Administration
Server Certificate Administration
ITSO Certificate Author..
ITSO Certificate Auth...
Merge Certificate Into Key Ring
administrator

Install Certificate into Key Ring

The Certificate Authority will notify when your signed certificate is ready The specifics depend on the Certificate Authority, but typically you will receive an e-mail specifying a URL where you can pick up the certificate Once you have obtained the signed certificate, this form lets you install it into your key ring. **Note:** Before installing this certificate, it is recommended that you install the certificate of the signing Certificate Authority in your key ring as a Trusted Root If you haven't already done so, choose "Accept This Authority In Your Server" from the main menu of the Certificate Authority Web site to obtain the CA certificate

Key Ring Information

Key Ring File Name: c:\notes\data\mjollner.kyr

Quick Help

Specify the key ring file

Certificate Information

Certificate Source: ○ File ● Clipboard

The source of the certificate can be from a file or from the clipboard

Certificate from Clipboard:

```
-----BEGIN CERTIFICATE-----
MIICazCCAdSgAwIBAgIEOU+9IjANBgkqhkiG9w0BAQQFADB/MQswCQYDVQQGEwJV
UzEWMBQGA1UECBMNTWFzc2FjaHVzZXR0czESMBAGA1UEBxMJQ2FtYnJpZGdlMQ4w
DAYDVQQKEwVMb3RlczENMAsGA1UECxMESVRTTzE1MCMGA1UEAxMcSVRTTyBDZXJ0
aWZpY2F0aW9uIEF1dGhvcml0eTAeFw0wMDA2MjAwMDAwMDBaFw0wMjA2MjAyMzU5
MDBaMHUxCzAJBgNVBAYTAlVTMRYwFAYDVQQIEw1NYXNzYWNodXNldHRzMRIwEAYD
VQQHEwlDYW1icmlkZ2UxDjAMBgNVBAoTBUxvdHVzMQ0wCwYDVQQLEwRJVFNPMRsw
GQYDVQQDExJtam9sbG5lci5sb3Rlcy5jb20wgZ8wDQYJKoZIhvcNAQEBBQADgY0A
MIGJAoGBAMX3Yo5BSXR5opeOl7bI2TPSgV/36YggQELFIzQzRKUp5j8V+rzatyki
ACJLJwL+vYMNpK3ah5npyPIjiQdH3BS8Xea3xxXUwFpq2na++IBlMyldzkVa32m6
t/folZDm2u+PjkArGPmMejZSeCDiDe3fCsUK4YmYsJcbJIMli7qxAgMBAAEwDQYJ
KoZIhvcNAQEEBQADgYEAK4MsvUPgSCtPsIcRHdo23GGBBoJdmdCqZSJgQtgUSKtO
WLeUq388SnbT0edT1T7s61qdyF62wfgH1ff3wlWZPhwwlbIrMAHb5USWVKx3+E38
RxSczEoF5ecSQpA5ZTaT13BeiD0iyTdxS0J51/qHL0gBVOTTe6S103rS6oK6rSY=
-----END CERTIFICATE-----
```

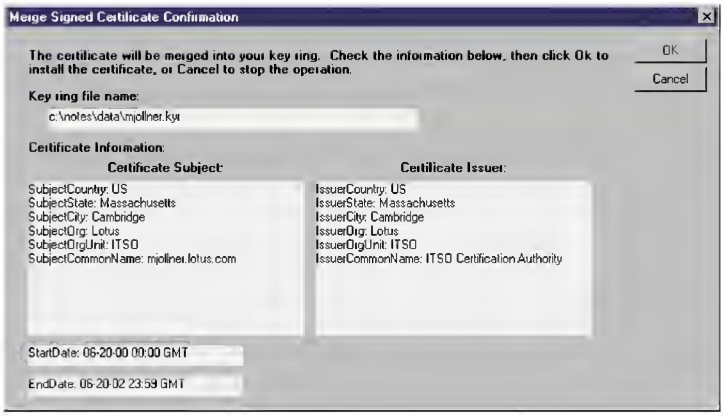
Paste the clipboard contents into this field.

Note: The pasted certificate must include the "Begin Certificate" and "End Certificate" lines

Press CTRL-V to paste the clipboard contents into the field, including the Begin and End lines

Figure 29. Pasting server certificate into server certificate administration database

Press the button at the bottom of the panel (“**Merge Certificate into Key Ring**”). You will be prompted for the server’s keyring file password as shown in Figure 12 on page 17. After entering the keyring file’s password, you will receive a confirmation panel showing the contents of the key as shown in Figure 30 on page 33.



The certificate will be merged into your key ring. Check the information below, then click Ok to install the certificate, or Cancel to stop the operation.

Key ring file name:
c:\notes\data\mjollner.kyr

Certificate Information:

Certificate Subject:
SubjectCountry: US
SubjectState: Massachusetts
SubjectCity: Cambridge
SubjectOrg: Lotus
SubjectOrgUnit: ITSO
SubjectCommonName: mjollner.lotus.com

Certificate Issuer:
IssuerCountry: US
IssuerState: Massachusetts
IssuerCity: Cambridge
IssuerOrg: Lotus
IssuerOrgUnit: ITSO
IssuerCommonName: ITSO Certification Authority

StartDate: 06-20-00 00:00 GMT

EndDate: 06-20-02 23:59 GMT

Figure 30. Server certificate contents for confirmation before adding to keyring

Examine the contents to ensure that all details are as expected and press **OK** when satisfied. The certificate will be merged into your server's keyring file. A final confirmation panel (not shown) will confirm that the certificate has been successfully merged into your server's keyring file. Press **OK** to dismiss the confirmation.

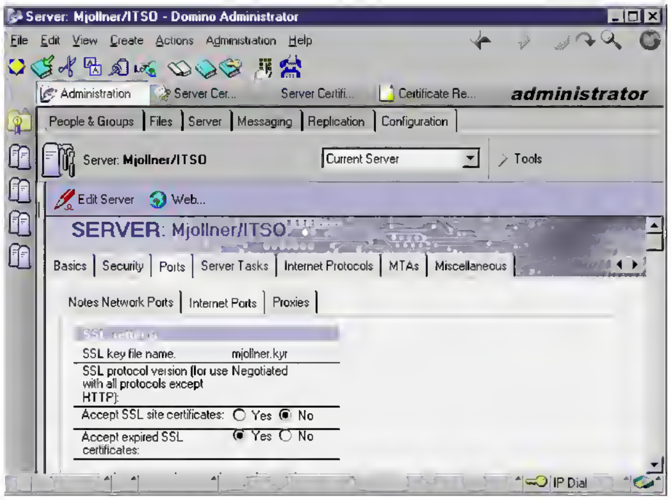
At this point you can copy the keyring file onto the server's data disk (\Lotus\Domino\Data by default). You also need to copy the corresponding stash file -- it will have the same filename as the keyring file, but with an extension of ".sth". The stash file has an (encoded) copy of the server's keyring password so that the server can open the keyring.

You now need reconfigure the server's HTTP task to use SSL by updating the Server document in the Domino Directory.

1.2.4.3 Configuring a Domino server to use SSL

The previous steps should have been completed and the server's keyring should be in the data directory of the Domino server before starting.

Open a Domino administrator client, select the server to have SSL enabled (or an administration server), and select the "**Configuration**" tab. Open the server document for Domino server to have SSL enabled in edit mode and select the **Internet Ports** subtab. Enter the keyring name in the field **SSL key file name** as shown in Figure 31 on page 34.



Server: **Mjollner/ITSO**

SERVER: Mjollner/ITSO

SSL settings

SSL key file name. mjollner.kyr

SSL protocol version (for use with all protocols except HTTP): Negotiated

Accept SSL site certificates: ○ Yes ● No

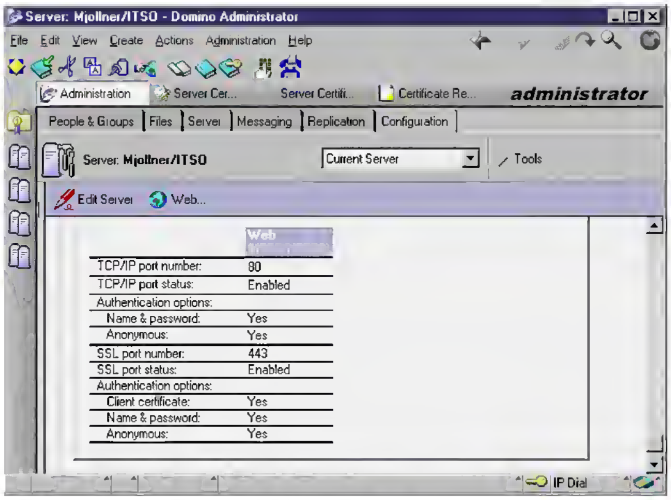
Accept expired SSL certificates: ● Yes ○ No

Figure 31. Adding the server's keyring file name to the server document

Now scroll down the document until the "**Web http/https**" section shows and change the SSL port status to "**Enabled**" as shown in Figure 32 on page 35. Also check the authentication options you will allow on your server:

- Client certificates for SSLv3 browser certificates
- Basic Name and Password authentication
- Anonymous access

Now that the server is configured for SSL, you can enable client certificate authentication. This can be combined with the other options as required.



	Web
TCP/IP port number:	80
TCP/IP port status:	Enabled
Authentication options:	
Name & password:	Yes
Anonymous:	Yes
SSL port number:	443
SSL port status:	Enabled
Authentication options:	
Client certificate:	Yes
Name & password:	Yes
Anonymous:	Yes

Figure 32. Enabling the SSL port and authentication methods in the server document

Press **Save and Close**. If you edited the server document on a different server from the one in the server document, you should replicate the Names.nsf database to the remote server before trying to start SSL.

SSL will now be enabled the next time you start your Domino server. You can also stop and restart the HTTP task to immediately enable SSL. This can be done from the server console by typing

```
tell http quit
```

followed by

```
load http
```

You can also type

```
tell http restart
```

to have the HTTP server stop and restart in a single operation.

This completes the installation and enabling of SSL on your server. You can test it by accessing your server using a URL of the form “http**s**://myserver/homepage.nsf?Open” to confirm that SSL is enabled.

You can also confirm that SSL is installed and active by typing the command

```
tell http show security
```

from the server console. If SSL is active you will get a response like the one shown in Figure 33:

```
> tell http show security
06/23/2000 09:28:18 AM  Base server:
06/23/2000 09:28:18 AM     SSL enabled
06/23/2000 09:28:18 AM     Key file name: D:\Domino\Data\mjollner.kyr
06/23/2000 09:28:18 AM     Secure server started
```

Figure 33. Server console command and response showing SSL is active

The response should contain “SSL enabled”. Verify that the key file name is as expected.

You can also simply issue a “Show tasks” command from the Domino console. The line for the HTTP task will show which ports it is listening on as shown in Figure 34:

```
>show tasks
>  HTTP Web Server      Listening on port(s) 80, 443
```

Figure 34. Show task command showing the SSL port 443 for the HTTP task

Since the HTTP task is listening on port 443, SSL is active. This assumes that you did not change the default port assignment in the server document.

If there was an error in the configuration (or you forgot to press ‘Save and Close’ from the server document) you will get a response warning you that SSL is not enabled (even if the keyring file is listed) from the command:

```
> tell http show security
06/23/2000 05:13:34 PM  Base server:
06/23/2000 05:13:34 PM     SSL NOT enabled
06/23/2000 05:13:34 PM     Key file name: D:\Domino\Data\mjollner.kyr
06/23/2000 05:13:34 PM    Secure server not started. Waiting for HTTPS
request
```

Figure 35. Server console command and response showing SSL is not active

1.3 Requesting Client (Browser) certificates

This process is necessary to request, create and install a client certificate in the user’s browser. In addition, it is necessary to add the resulting certificate to the Person document corresponding the person named in the certificate. We illustrate using Netscape 4.7 and the Domino certificate authority database but the process would be similar with other browsers and certificate authorities.

The steps necessary are:

1. **Accept the Certificate Authority as a trusted root in your browser**

   This is very similar to the server process described in “Merging the Certificate Authority’s certificate into the server keyring” on page 20 except that the CA trusted root certificate will be added to your browser keyring. Note that, if you request a certificate from an external CA, you may already have its certificate installed by default.

   For example, to check this with a Netscape browser, you can view the list of CA certificates flagged as “trusted roots” by pressing **Security** from the navigation toolbar (you may need to expand it if it is collapsed) and then selecting **Certificates - Signers** from the panel displayed. This is shown in Figure 42 on page 41.

   To check with Microsoft Internet Explorer (we used IE 5 for this test; your version may be slightly different), select **Tools-Internet Options** from the window menu, select the tab **Content** and press the button **Certificates** and then select the tab **Trusted Root Certification Authorities**. You will be presented with a panel listing the default certification authorities.

   For either browser you can drop the flag “trusted root” for any certificate or delete it from your keyring.

2. **Request a client certificate**

   This is done from the client’s browser; it generates a public-private keypair (unless a pair already exists), extracts the public key to be certified and posts it to the CA site for approval.

3. **Certificate Authority approves certificate request**

   This is very similar to approving a server’s certificate request except that the administrator has an option to add the certificate to the corresponding Person document in the Domino Directory as part of the approval process.

4. **Client merges approved certificate into their browser**

   The details of this process are browser dependent; we illustrate with Netscape 4.7.

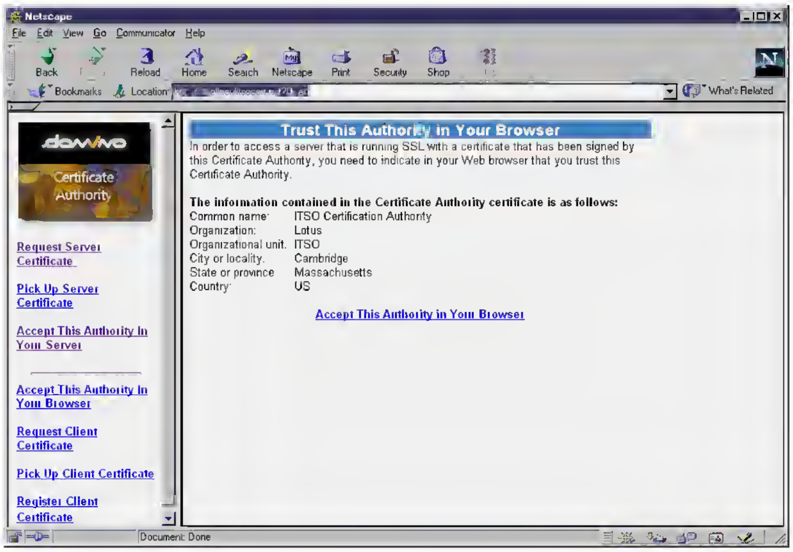
5. **(Optional) Client requests registration of their browser certificate**

If the administrator did not add this in 3 or the certificate is from an external certificate authority, this allows the browser certificate to be placed into the Domino Directory when approved by the CA administrator.

1.3.1 Accept a certificate authority as a trusted root in your browser

By doing this you are setting up a trust relationship: you (or rather your browser) will accept any certificates signed by this CA as valid because you have indicated you trust the CA.

Using your browser, navigate to the CA site (we are illustrating the Domino CA in our example) as shown in Figure 14 on page 19 and select **Accept this Authority in your Browser**. The confirmation panel is shown in Figure 36 on page 38.


Netscape
File Edit View Go Communicator Help
Back
Reload
Home
Search
Netscape
Print
Security
Shop
Bookmarks
Location
What's Related
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

Trust This Authority in Your Browser

In order to access a server that is running SSL with a certificate that has been signed by this Certificate Authority, you need to indicate in your Web browser that you trust this Certificate Authority.

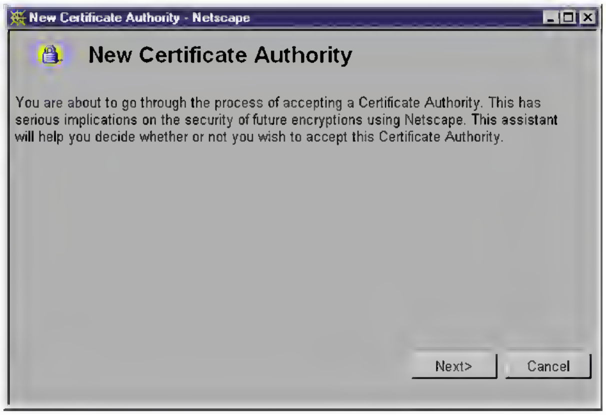
The information contained in the Certificate Authority certificate is as follows:

Common name:	ITSO Certification Authority
Organization:	Lotus
Organizational unit:	ITSO
City or locality:	Cambridge
State or province	Massachusetts
Country:	US

Accept This Authority in Your Browser

Figure 36. Trusting a CA as a trusted root

Click on **Accept This Authority in Your Browser**. You will receive a series of warning prompts as shown in the following panels.



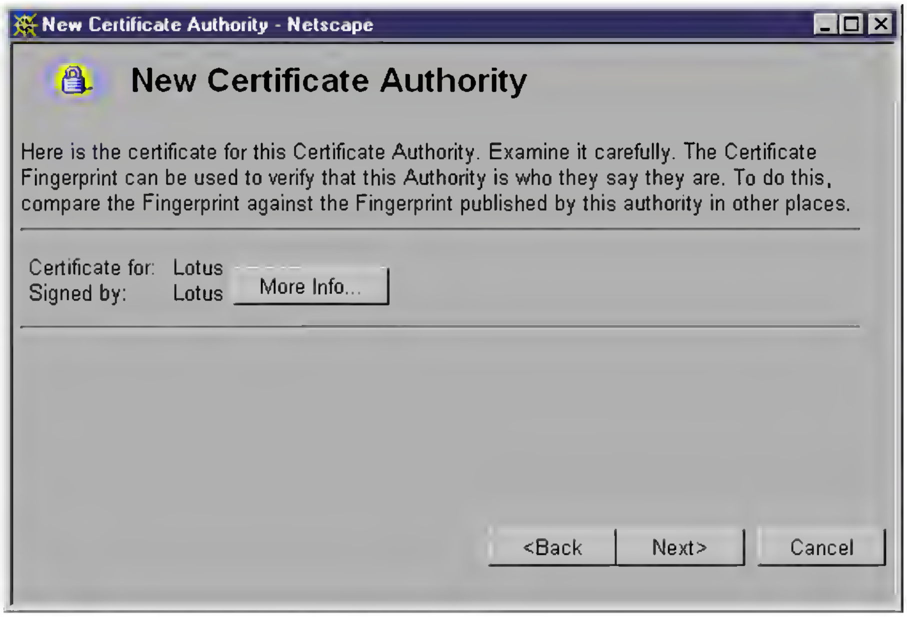
New Certificate Authority - Netscape

New Certificate Authority

You are about to go through the process of accepting a Certificate Authority. This has serious implications on the security of future encryptions using Netscape. This assistant will help you decide whether or not you wish to accept this Certificate Authority.

Figure 37. Warning panel for accepting a new certificate authority in Netscape

Press **Next**, and **Next** on the next panel (not shown). You will be presented with a panel (Figure 38 on page 39) which allows you to examine the CA certificate. Press **More Info** if you wish to examine the CA certificate.



New Certificate Authority - Netscape

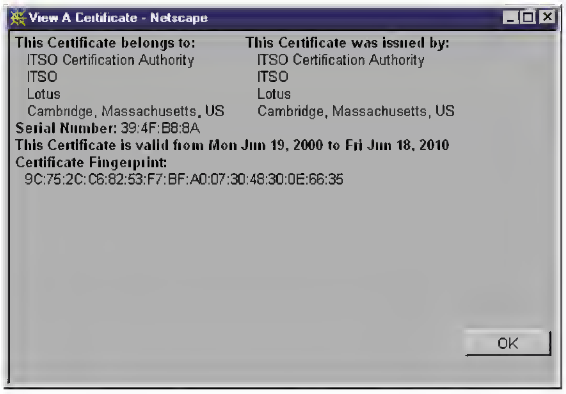
New Certificate Authority

Here is the certificate for this Certificate Authority. Examine it carefully. The Certificate Fingerprint can be used to verify that this Authority is who they say they are. To do this, compare the Fingerprint against the Fingerprint published by this authority in other places.

Certificate for: Lotus
Signed by: Lotus

Figure 38. Examination panel for CA certificate

If you choose to examine the certificate you will see a panel like the one shown in Figure 39:



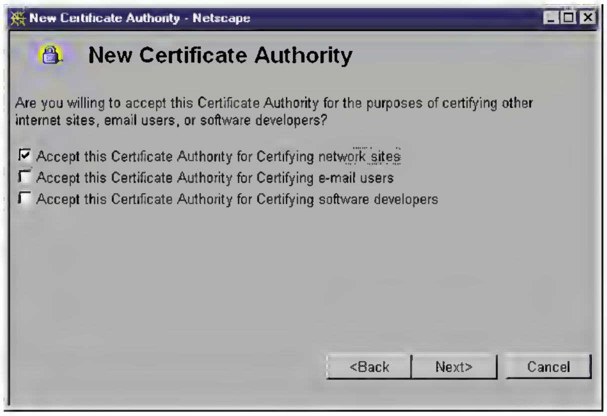
This Certificate belongs to:
ITSO Certification Authority
ITSO
Lotus
Cambridge, Massachusetts, US

This Certificate was issued by:
ITSO Certification Authority
ITSO
Lotus
Cambridge, Massachusetts, US

Serial Number: 39:4F:B8:8A
This Certificate is valid from Mon Jun 19, 2000 to Fri Jun 18, 2010
Certificate Fingerprint:
9C:75:2C:C6:82:53:F7:BF:A0:07:30:48:30:0E:66:35

Figure 39. Viewing the CA trusted root certificate

When you are satisfied with the CA certificate, press **OK**. You will be returned to the previous panel (Figure 38 on page 39). Press **Next**. You will be prompted for the level of trust you want to grant this certificate authority. For our purposes it is adequate to specify "**Accept this Certificate Authority for Certifying network sites**" as shown in Figure 40:



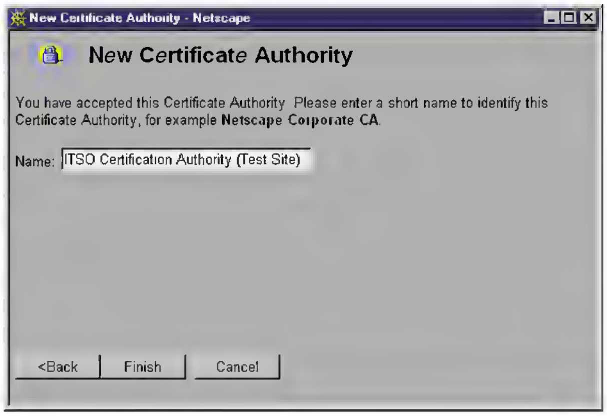
New Certificate Authority

Are you willing to accept this Certificate Authority for the purposes of certifying other internet sites, email users, or software developers?

☑ Accept this Certificate Authority for Certifying network sites
☐ Accept this Certificate Authority for Certifying e-mail users
☐ Accept this Certificate Authority for Certifying software developers

Figure 40. Specifying the level of trust of Certificate Authority

You may specify the other options if you wish. (You can change these options in the future by editing your certificate) Press **Next**. You will receive a panel which allows you to specify that you should be warned before sending information to sites certified by this CA. Do *not* select this option. Simply press **Next**. Finally you will be asked to supply a name to identify this certificate authority in your browser when viewing all your "signers" (certificate authorities, whether “trusted” or not). Supply a phrase that will allow you to recognize this CA in future and press **Finish** as shown in Figure 41 on page 41:

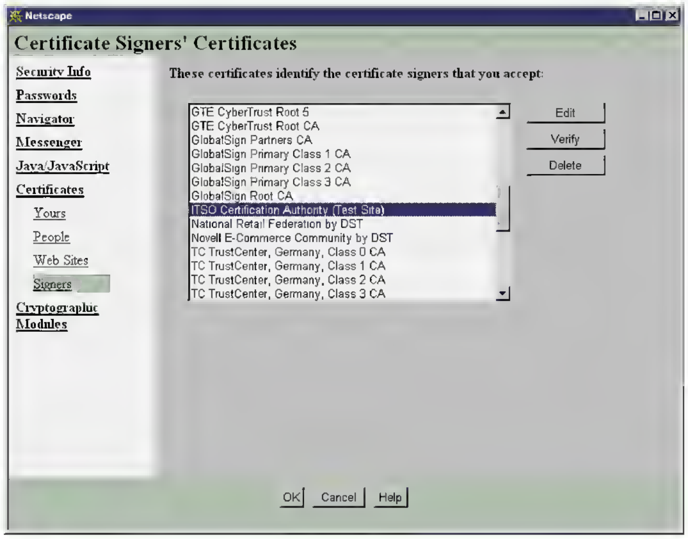

New Certificate Authority - Netscape
New Certificate Authority
<Back
Finish
Cancel

You have accepted this Certificate Authority. Please enter a short name to identify this Certificate Authority, for example **Netscape Corporate CA**.

Name: ITSO Certification Authority (Test Site)

Figure 41. Specifying a short name to identify the certificate authority in future

You can confirm that the trusted root certificate has been added to your browser by selecting ‘Security’ from the Netscape Navigation Toolbar. You will be presented with a panel from which you can select “Signers” from the menu on the left of the panel shown in Figure 42:



These certificates identify the certificate signers that you accept:

GTE CyberTrust Root 5
GTE CyberTrust Root CA
GlobalSign Partners CA
GlobalSign Primary Class 1 CA
GlobalSign Primary Class 2 CA
GlobalSign Primary Class 3 CA
GlobalSign Root CA
ITSO Certification Authority (Test Site)
National Retail Federation by DST
Novell E-Commerce Community by DST
TC TrustCenter, Germany, Class 0 CA
TC TrustCenter, Germany, Class 1 CA
TC TrustCenter, Germany, Class 2 CA
TC TrustCenter, Germany, Class 3 CA

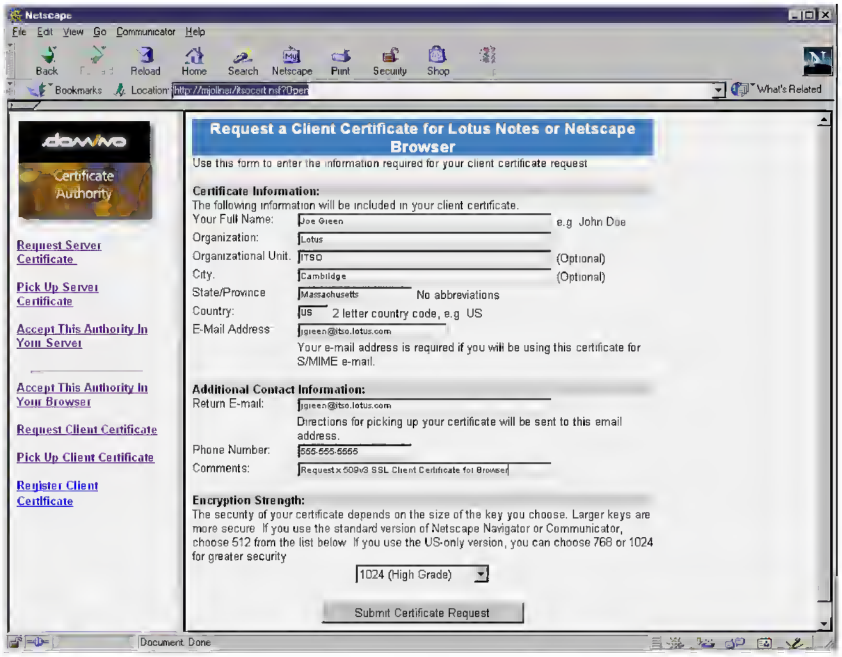
Figure 42. Listing trusted root certifiers in a (Netscape) browser

You may examine the certificate by selecting it and pressing "**Edit**" if you wish. This also allows you to change the permissions you selected in Figure 40 on page 40. When you are finished, press **OK**.

This completes installing a trusted root in your browser.

1.3.2 Request a client certificate from the certification authority

Navigate to the certificate authority site and select **Request a Client Certificate**. Fill out the resulting panel as shown in Figure 43 on page 42.


Netscape
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop
Bookmarks Location: http://mjollner/itsocert.nsf?Open
What's Related
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

Request a Client Certificate for Lotus Notes or Netscape Browser

Use this form to enter the information required for your client certificate request

Certificate Information:

The following information will be included in your client certificate.

Your Full Name:	Joe Green	e.g John Doe
Organization:	Lotus	
Organizational Unit:	ITSO	(Optional)
City:	Cambridge	(Optional)
State/Province	Massachusetts	No abbreviations
Country:	US	2 letter country code, e.g US
E-Mail Address	jgreen@itso.lotus.com	

Your e-mail address is required if you will be using this certificate for S/MIME e-mail.

Additional Contact Information:

Return E-mail: jgreen@itso.lotus.com

Directions for picking up your certificate will be sent to this email address.

Phone Number: 555-555-5555

Comments: Request x.509v3 SSL Client Certificate for Browser

Encryption Strength:

The security of your certificate depends on the size of the key you choose. Larger keys are more secure. If you use the standard version of Netscape Navigator or Communicator, choose 512 from the list below. If you use the US-only version, you can choose 768 or 1024 for greater security.

1024 (High Grade)

Submit Certificate Request

Figure 43. Requesting a client (browser) certificate from a Domino certificate authority

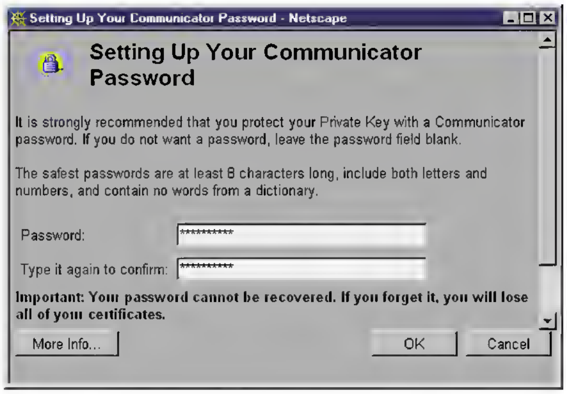
The fields on the top half of the form are mandatory and will form part of the information to be certified.

You can also fill out any necessary contact information for the CA administrator.

Finally choose the level of encryption (the available options will be determined by your browser version) and press **Submit Certificate Request**.

If you have never had a certificate in your browser you will receive an information panel telling you that your private (and public) key are about to be generated. Press **OK** to continue.

You will be prompted to supply a password for your keyring as shown in Figure 44 on page 43. If it is a new keyring you will have to type it twice. Be sure to remember the keyring password since your certificates cannot be accessed without entering it.



Setting Up Your Communicator Password

It is strongly recommended that you protect your Private Key with a Communicator password. If you do not want a password, leave the password field blank.

The safest passwords are at least 8 characters long, include both letters and numbers, and contain no words from a dictionary.

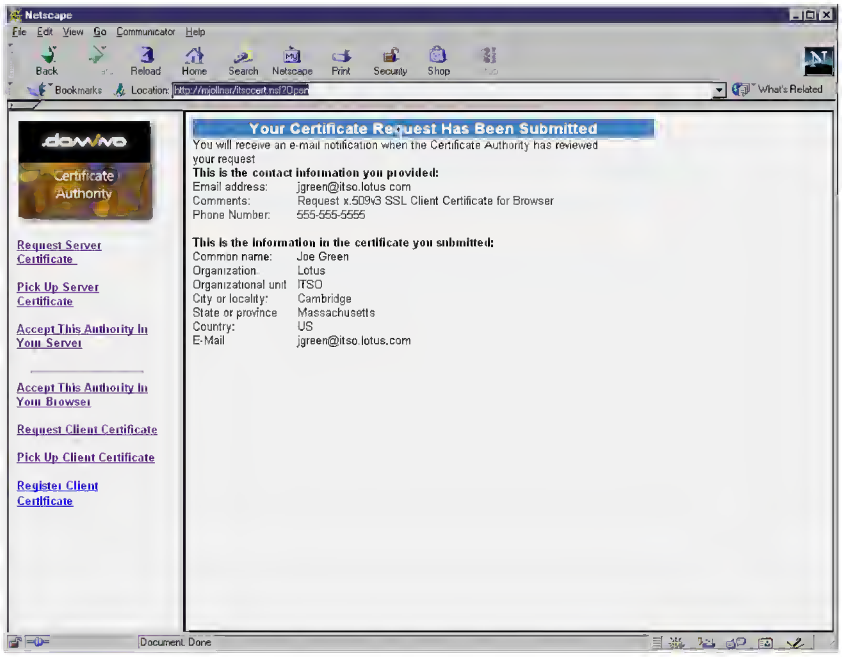
Password: **********

Type it again to confirm: **********

Important: Your password cannot be recovered. If you forget it, you will lose all of your certificates.

Figure 44. Supplying a password for the browser keyring

Press **OK** to continue; you will see the response from the certificate authority confirming receipt of your certificate request as shown in Figure 45:



Netscape
File Edit View Go Communicator Help
Back
Reload
Home
Search
Netscape
Print
Security
Shop
Bookmarks
Location: http://mjollner/itsocert.nsf?Open
What's Related
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

Your Certificate Request Has Been Submitted

You will receive an e-mail notification when the Certificate Authority has reviewed your request

This is the contact information you provided:

Email address:	jgreen@itso.lotus com
Comments:	Request x.509v3 SSL Client Certificate for Browser
Phone Number:	555-555-5555

This is the information in the certificate you submitted:

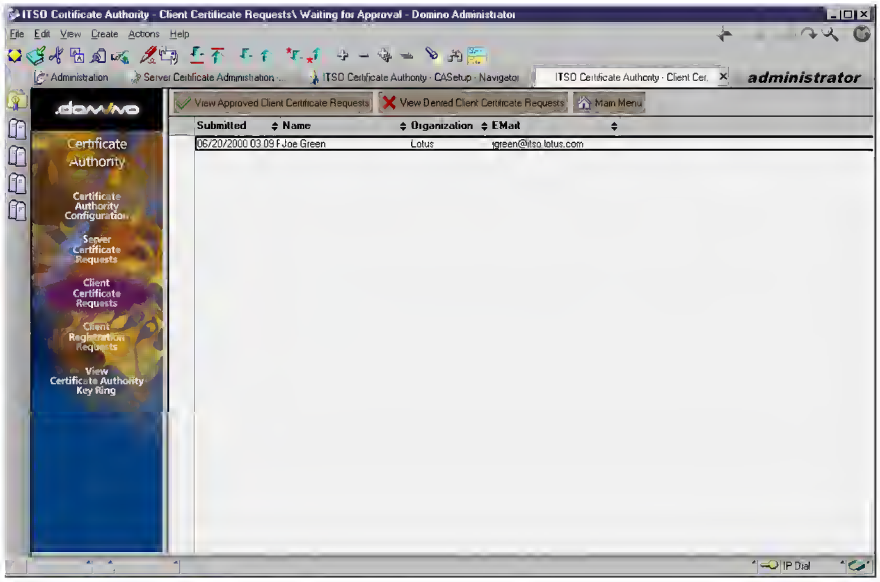
Common name:	Joe Green
Organization:	Lotus
Organizational unit	ITSO
City or locality:	Cambridge
State or province	Massachusetts
Country:	US
E-Mail	jgreen@itso.lotus.com

Figure 45. Certificate authority confirmation of receipt of client certificate request.

This completes the process of requesting a certificate. The certificate authority has to approve your request before you can proceed.

1.3.3 Approving a client certificate request in the Domino CA

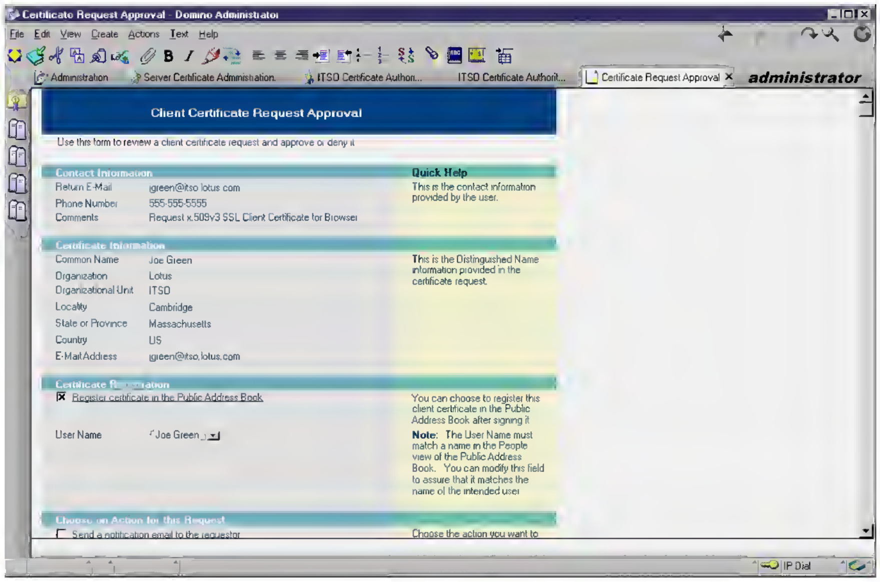
Open the certificate authority database and select “**Client Certificate Requests**” from the menu on the left side of the screen. A view with the outstanding client certificate requests will open as shown in Figure 46:


ITSO Certificate Authority - Client Certificate Requests\ Waiting for Approval - Domino Administrator
File Edit View Create Actions Help
Administration
Server Certificate Administration ...
ITSO Certificate Authority - CASetup - Navigator
ITSO Certificate Authority - Client Cer.
administrator
domino
Certificate Authority
Certificate Authority Configuration
Server Certificate Requests
Client Certificate Requests
Client Registration Requests
View Certificate Authority Key Ring
View Approved Client Certificate Requests
View Denied Client Certificate Requests
Main Menu
IP Dial

Submitted	Name	Organization	EMail
06/20/2000 03:09 F	Joe Green	Lotus	jgreen@itso.lotus.com

Figure 46. Client (browser) certificate requests waiting for approval

Select the client request(s) to be approved. There is only one in our example. Open the request to approve it as shown in Figure 47 on page 45.


Certificate Request Approval - Domino Administrator
File Edit View Create Actions Text Help
Administration
Server Certificate Administration.
ITSO Certificate Author...
ITSO Certificate Authorit...
Certificate Request Approval
administrator
IP Dial

Client Certificate Request Approval

Use this form to review a client certificate request and approve or deny it

Contact Information

Return E-Mail	jgreen@itso.lotus.com
Phone Number	555-555-5555
Comments	Request x.509v3 SSL Client Certificate for Browser

Quick Help

This is the contact information provided by the user.

Certificate Information

Common Name	Joe Green
Organization	Lotus
Organizational Unit	ITSO
Locality	Cambridge
State or Province	Massachusetts
Country	US
E-Mail Address	jgreen@itso.lotus.com

This is the Distinguished Name information provided in the certificate request.

Certificate Registration

☒ Register certificate in the Public Address Book

User Name ⌈Joe Green⌋

You can choose to register this client certificate in the Public Address Book after signing it.

Note: The User Name must match a name in the People view of the Public Address Book. You can modify this field to assure that it matches the name of the intended user.

Choose an Action for this Request

☐ Send a notification email to the requestor

Choose the action you want to

Figure 47. Approval panel for client certificate request

The top of the form has the information from the client certificate request.

The contact information need *not* be the same as the certificate information. They could be different if the submittor chose a colleague as a contact because, for example, a newly hired person without a telephone wished to register their certificate.

You can only view the certificate information. If it is wrong you will need to deny the request and ask the client to resubmit his corrected request.

The remaining fields are:

- **Register certificate in the Public Address Book**:

  This option allows you to have the certificate, once approved, to be added to the requestor's Person document (**Internet Certificates** subtab of the **Certificates** tab). If selected, a request will be placed in the Administration Requests database to perform the action. It will be performed on the Administration server for the Domino Directory; this may not be the same as the server used for the Domino certificate authority. Note that this requires that you ensure that the person is already in the Domino Directory (preferably on all replicas, but it *must* be in the replica on the Administration Server for the Domino Directory when the request is performed).

  If you do not select this action at this time, you can still do so in the future by opening the approved client request in the certificate authority database. There will be an information section telling you that you did not add this person's certificate to the Domino Directory. You will have a User Name field to allow looking up the requestor's name in the Directory and a button to submit the request.

- **User Name**:

  The name to locate the person in the Directory can be changed from this field. This is to allow the administrator to change it to match one of the entries in the username field of the person's Person document. The submitted entry could be different if the certificate had a slightly different spelling or format but this should not invalidate adding it to the Domino Directory.

  You can select the down arrow to the right of the field to open the Domino Directory (any directories known to your client) to search for names and select the desired name.

- **Send a notification e-mail to the requestor**:

This checkbox allows you to select that an automatic e-mail will be sent to the requestor. It will be checked by default if you selected this option in the certificate authority profile as shown in Figure 6 on page 8. Note that users should be cautioned that, even when their request is approved, there may be a delay before their certificate is added to the Domino Directory and, once added, propagated to all replicas of it. The default message in the generated e-mail (Figure 50 on page 50) implies that the process is immediate.

- **Validity period**:

  Again, this will be set to 2 years by default, but you can change it to any period (in years or days) that you wish.

- **Reason**:

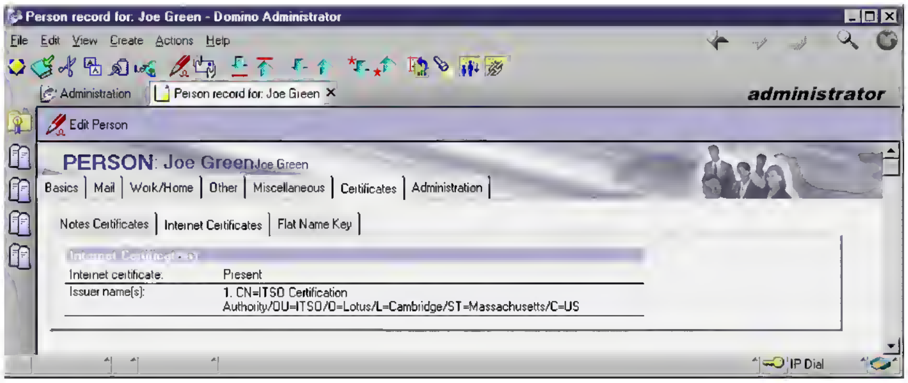
  If, for some reason, you deny the request you can fill out this field. It will be saved with the request for future reference and included in the e-mail to the requestor.

If you approve of the request, press the "**Approve**" button in the Action section. You will be prompted for the Domino certificate authority keyring file password and returned to the original view. You can view the approved requests by selecting the green check mark from the action bar and selecting the document you just approved.

If you wish to deny the request, press the "**Deny**" button in the Deny section You will want to fill out the reason before denying the request.

If you selected to have the certificate added to the Domino Directory by the Domino Administration Process, you may wish to confirm that the addition was successful after a reasonable delay for processing and replication. You can do this by:

1. Opening the person's Person document, selecting the tab **Certificates** and the subtab **Internet certificates** and inspecting their Internet certificate as shown in Figure 48 on page 48. If present, the addition was obviously successful. No further action is required other than ensuring that the Domino Directory replicates to all servers with the LDAP task enabled and pointed to by your Directory Assistance database for web browser authentication.



Internet certificate: Present

Issuer name(s): 1. CN=ITSO Certification Authority/OU=ITSO/O=Lotus/L=Cambridge/ST=Massachusetts/C=US

Figure 48. Viewing a person's Internet certificate in the Domino Directory

2. You can also search for the certificate by running the ldapsearch command included with the Domino R5 server. This is run from the command line:

   `ldapsearch -v -L -h mjollner.lotus.com "cn=Joe*"`

   to search for the entry "Joe Green" that we added earlier. If present, you should see the certificate listed in the output:

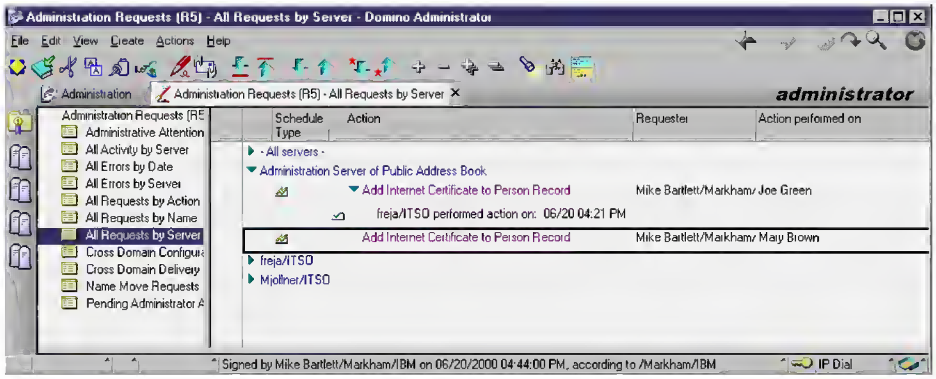
```
ldap_open( mjollner.lotus.com, 389 )
filter pattern: cn=Joe*
returning: ALL

*** Filter is: (cn=Joe*) ***
dn: CN=Joe Green
cn: Joe Green
shortname: jgreen
uid: jgreen
mail: Joe_Green@lotus.com
objectclass: top
objectclass: person
objectclass: organizationalPerson
objectclass: inetOrgPerson
objectclass: dominoPerson
usercertificate;binary::
MIICiTCCAfKgAwIBAgIEOU/BszANBgkqhkiG9w0BAQQFADB/MQsw
CQYDVQQGEwJVUzEWMBQGA1UECBMNTWFzc2FjaHVzZXR0czESMBAGA1UEBxMJQ2FtYnJp
ZGdlMQ4wDAYDVQQKEwVMb3R1czENMAsGA1UECxMESVRTTzElMCMGA1UEAxMcSVRTTyBD
ZXJ0aWZpY2F0aW9uIEF1dGhvcml0eTAeFw0wMDA2MjAwMDAwMDBaFw0wMjA2MjAyMzU5
MDBaMIGSMQswCQYDVQQGEwJVUzEWMBQGA1UECBMNTWFzc2FjaHVzZXR0czESMBAGA1UE
BxMJQ2FtYnJpZGdlMQ4wDAYDVQQKEwVMb3R1czENMAsGA1UECxMESVRTTzESMBAGA1UE
```

```
AxMJSm9lIEdyZWVuMSQwIgYJKoZIhvcNAQkBFhVqZ3JlZW5AaXRzby5sb3R1cy5jb20w
gZ8wDQYJKoZIhvcNAQEBBQADgY0AMIGJAoGBANP5/StWjPL/7T4IQrAmkAGdmleUa+Xt
CRHafGKj9zEWrFY/KdzHB6n/QA4nJWqSCs01CE+Xi/IpUypK6QEn9/OX+4R0IXHQe0g2
8KgVEpZsqDTicJtQrFxcucDiUGs+AQ2VLEvrRODeA2zTlOBUmm/wVPKWFZ4+c/8fNyBg
PaIZAgMBAAEwDQYJKoZIhvcNAQEEBQADgYEAm/qFfLAbQEJ9sChlo3bTc2PQou4ROVX0
iJDAjkP+HwvfjJlOdK8NE/1eG1QFix+8ErkTvN/YZS7HRQzKgn1Bot2jt0eDfQ2ueWlz
TmRZckeBm/H9e14RItrRt5hWp1oP86bb6D9Sr0+t/n0hzKxtb0TTcLU9u1VfkbVbwh3G
yBo=
givenname: Joe
sn: Green
1 matches
```

The presence of (binary) data in the “user certificate” field confirms the presence of a certificate in Joe Green’s Person record. You can find more information about the ldapsearch utility in the Domino administrator’s Help files under **Domino Directories - The Domino LDAP Service - Using the ldapsearch utility to search LDAP directories**.

3. If the certificate is not (yet) present in the Person record in the Domino Directory you can open the Administration Requests database, open **All Requests by Server** from the navigator on the left and expanding the category **Administration Server of Public Address Book** and finally the sub- category **Add Internet Certificate to Person Record**. You should find your request (you may have to scroll to it if there are many requests) and the action performed on it as shown in Figure 49 on page 49:



Schedule Type	Action	Requester	Action performed on
- All servers -			
Administration Server of Public Address Book			
	Add Internet Certificate to Person Record	Mike Bartlett/Markham/ Joe Green	
	freja/ITSO performed action on: 06/20 04:21 PM		
	Add Internet Certificate to Person Record	Mike Bartlett/Markham/ Mary Brown	
freja/ITSO			
Mjollner/ITSO			

Signed by Mike Bartlett/Markham/IBM on 06/20/2000 04:44:00 PM, according to /Markham/IBM

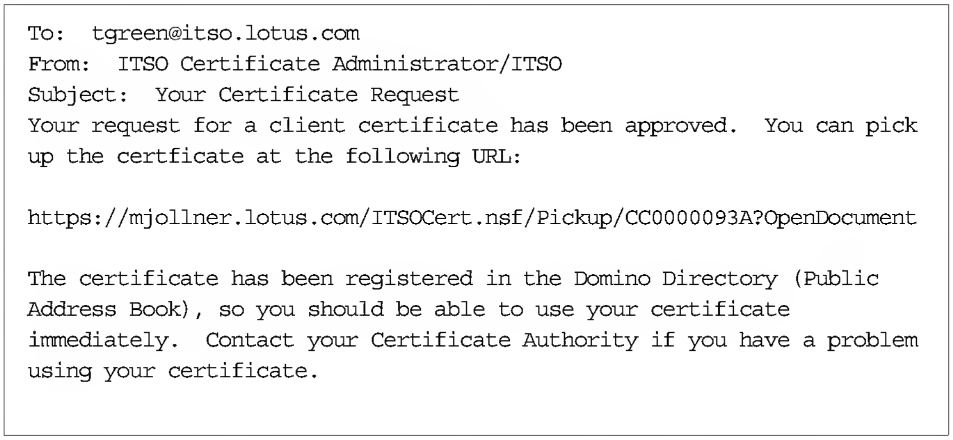
Figure 49. Administration Requests database - Client Certification Requests

There will be a response document under the original request if it has been processed. In our example, Joe Green’s request has been processed but the request for Mary Brown has not yet been processed. If processing was successful, there will be a green check mark showing in the view beside the response document. No further action is required (other than ensuring that the Domino Directory replicates to all servers). If there is a red “X” beside the response document, the addition failed. Open it to find why the request failed. Correct the situation and resubmit the request from the response document.

This completes the approval process. The client certificate is now ready to be picked up by the client browser.

1.3.4 Accepting a client certificate into a browser keyring

You may receive a confirmation e-mail from your certificate administrator telling you that your certificate has been approved and is ready for pick up. If so it may have a URL you can paste into your browser to directly access the certificate ready for pickup. The e-mail message will resemble the one shown in Figure 50:



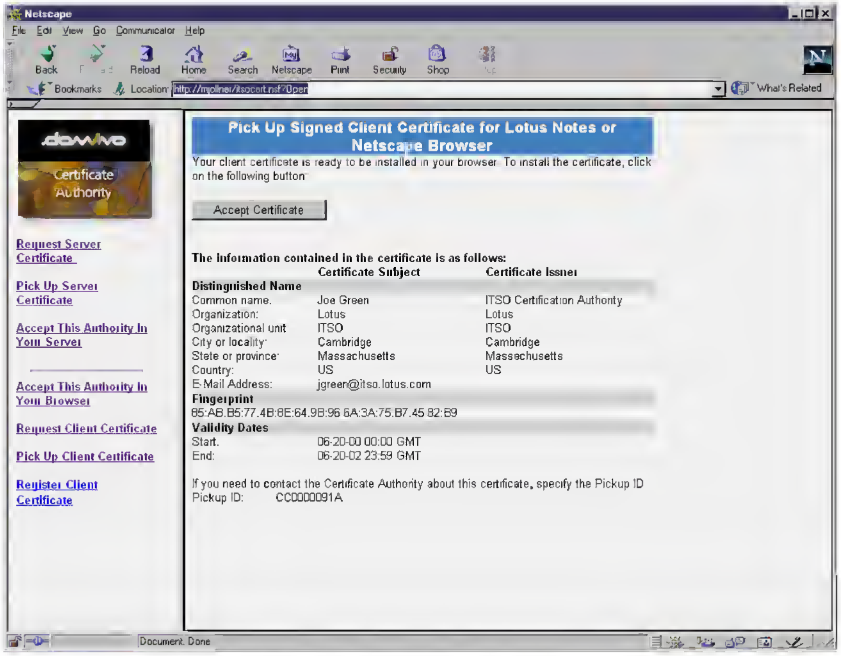
```
To:  tgreen@itso.lotus.com
From:  ITSO Certificate Administrator/ITSO
Subject:  Your Certificate Request
Your request for a client certificate has been approved.  You can pick
up the certficate at the following URL:

https://mjollner.lotus.com/ITSOCert.nsf/Pickup/CC0000093A?OpenDocument

The certificate has been registered in the Domino Directory (Public
Address Book), so you should be able to use your certificate
immediately.  Contact your Certificate Authority if you have a problem
using your certificate.
```

Figure 50. E-mail confirming certificate approval

You can also manually enter the correct URL in your browser to point to the Domino CA (as shown in Figure 14 on page 19) and select “**Pick Up Client Certificate**”. You will be prompted for your Pickup ID (this is part of the URL shown above in the e-mail) which will have been sent to you by the certificate administrator. The panel is very similar to the one to pick up a server certificate shown in Figure 26 on page 30. Press “**Pick up Signed Certificate**”. You will be presented with a confirmation panel as shown in Figure 51 on page 51.


Netscape
File Edit View Go Communicator Help
Back
Reload
Home
Search
Netscape
Print
Security
Shop
Bookmarks
Location: http://mjollner/itsocert.nsf?Open
What's Related
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

Pick Up Signed Client Certificate for Lotus Notes or Netscape Browser

Your client certificate is ready to be installed in your browser. To install the certificate, click on the following button:

Accept Certificate

The Information contained in the certificate is as follows:

	Certificate Subject	Certificate Issuer
Distinguished Name		
Common name:	Joe Green	ITSO Certification Authority
Organization:	Lotus	Lotus
Organizational unit	ITSO	ITSO
City or locality:	Cambridge	Cambridge
State or province:	Massachusetts	Massachusetts
Country:	US	US
E-Mail Address:	jgreen@itso.lotus.com	
Fingerprint		
85:AB:B5:77:4B:8E:64:9B:96:6A:3A:75:B7:45:82:B9		
Validity Dates		
Start:	06-20-00 00:00 GMT	
End:	06-20-02 23:59 GMT	

If you need to contact the Certificate Authority about this certificate, specify the Pickup ID
Pickup ID: CC000091A

Figure 51. Pick Up Screen for signed client certificate

Press **Accept Certificate** after confirming the certificate was valid. The client certificate will be installed into your browser's keyring. Note that there is no confirmation screen. However, you can confirm that the certificate was installed successfully in Netscape by pressing the **Security** button on the navigation toolbar and selecting **Certificates-Yours**. You should see your new certificate (if you have more than one, you may need to scroll the list). To view the contents of the certificate, press the **View** button. Press **OK** to dismiss the certificate panel and **OK** again to dismiss the security panel.

This completes the process of requesting and installing a client certificate in your browser. If you used a Domino CA, your certificate administrator had the opportunity to add your public certificate to your Person record in the Domino Directory either while approving your request or subsequently by viewing the approved request and requesting registration. If so, no further action is necessary on your part.

If you received your certificate from an external certificate authority or your administrator did not copy your certificate to the Domino Directory, you can now request that this be done.

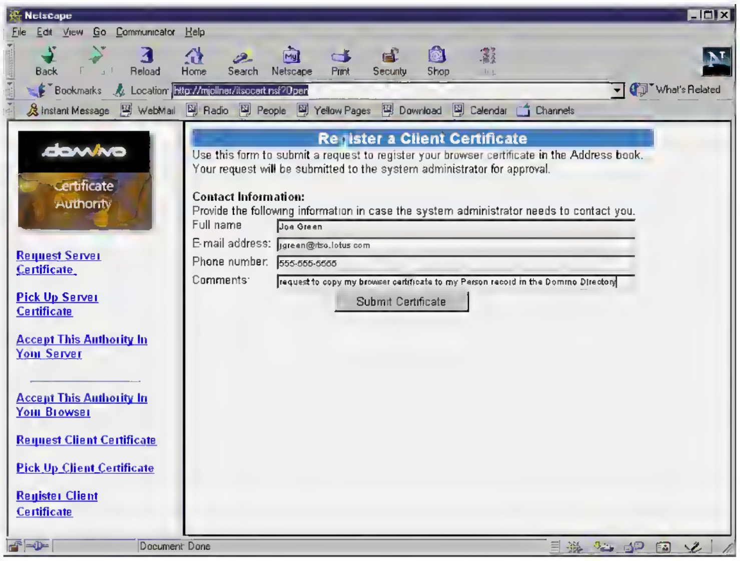
1.3.5 Requesting registration of a client certificate

As explained previously, this process exists to allow a client with a browser certificate to request that a copy be placed in their Person record in the Domino Directory. This will put a request record in the Domino Certification Authority database which the administrator will need to approve. If you have a certificate from the (same) Domino CA, you do not need to do this: if the administrator has a copy of your approved certificate request, they can request a copy be placed in your Person record by pressing a button on the approved request form. If the request is no longer present in the database or you received your certificate from another CA, you must follow this process to have your browser certificate copied the Domino Directory. This is necessary if your company uses certificate based LDAP authentication.

Your administrator must already have configured the server on which the Domino CA runs to support SSL as described in “Requesting and installing a Server Certificate” on page 10 and succeeding text.

To start the process, navigate to the Domino CA database (as shown in Figure 14 on page 19),*ensuring that you specify SSL* (by using http**s**:// in the URL), and select **Register a Client Certificate**. You will be asked to fill in a panel with your contact information. Note that this information is only for the administrator since your ‘official’ information is contained in your certificate.

This prompt screen is shown in Figure 52 on page 52.


Netscape
File Edit View Go Communicator Help
Back
Reload
Home
Search
Netscape
Print
Security
Shop
Bookmarks
Location: http://mjollner/itsocert.nsf?Open
What's Related
Instant Message
WebMail
Radio
People
Yellow Pages
Download
Calendar
Channels
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Submit Certificate
Document: Done

Register a Client Certificate

Use this form to submit a request to register your browser certificate in the Address book. Your request will be submitted to the system administrator for approval.

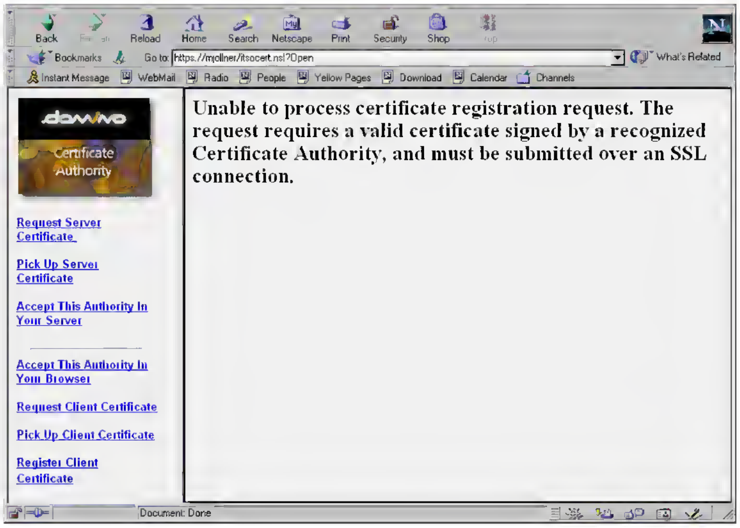
Contact Information:

Provide the following information in case the system administrator needs to contact you.

Full name: Joe Green
E-mail address: jgreen@itso.lotus.com
Phone number: 555-555-5555
Comments: request to copy my browser certificate to my Person record in the Domino Directory

Figure 52. Information panel for client browser certificate registration request

Press **Submit Certificate** when you have entered your contact information. If you receive an error message like the one shown in Figure 53, you will need to resubmit the request.



Back
Forward
Reload
Home
Search
Netscape
Print
Security
Shop
Stop
Bookmarks
Go to: https://mjollner/itsocert.nsf?Open
What's Related
Instant Message
WebMail
Radio
People
Yellow Pages
Download
Calendar
Channels
domino
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

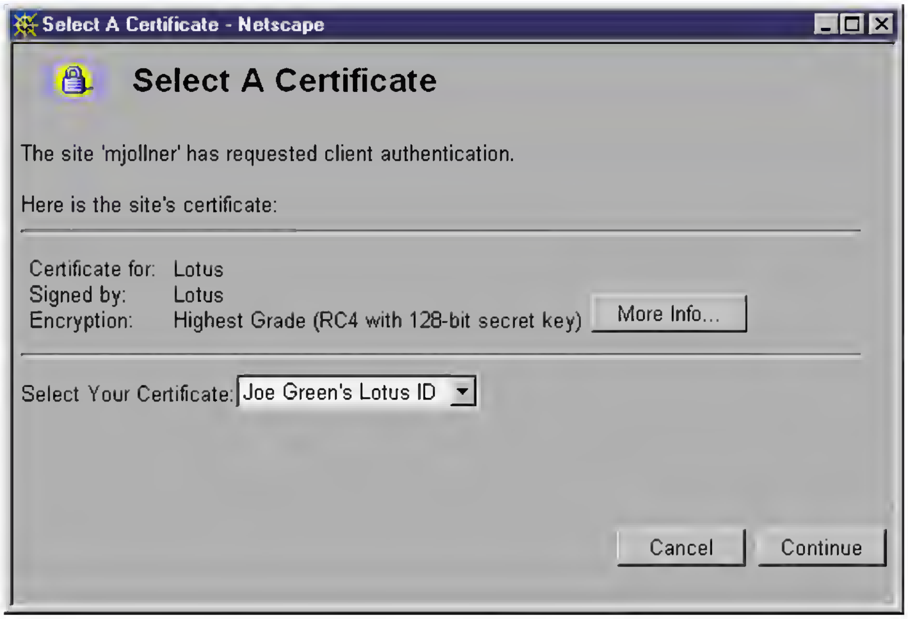
Unable to process certificate registration request. The request requires a valid certificate signed by a recognized Certificate Authority, and must be submitted over an SSL connection.

Figure 53. Error message from registering a user certificate

The error message “**Unable to process certificate registration request ...**” can result from two possibilities:

1. You did not specify SSL. Correct the URL to specify “http<u>**s**</u>:” and retry the request. You may need to clear your browser’s cache or restart it. Ensure that you *specify SSL when opening the CA database,* not just when you submit the request. This is because the client certificate is requested as part of the SSL handshake when you first open the database.
2. The server the Domino CA uses does not support SSL. Contact your administrator to correct this and retry when it supports SSL.

When you connect sucessfully using SSL, you will be presented with a dialog requesting you to select which client certificate you wish to use as shown in Figure 54:


Select A Certificate - Netscape

Select A Certificate

The site 'mjollner' has requested client authentication.

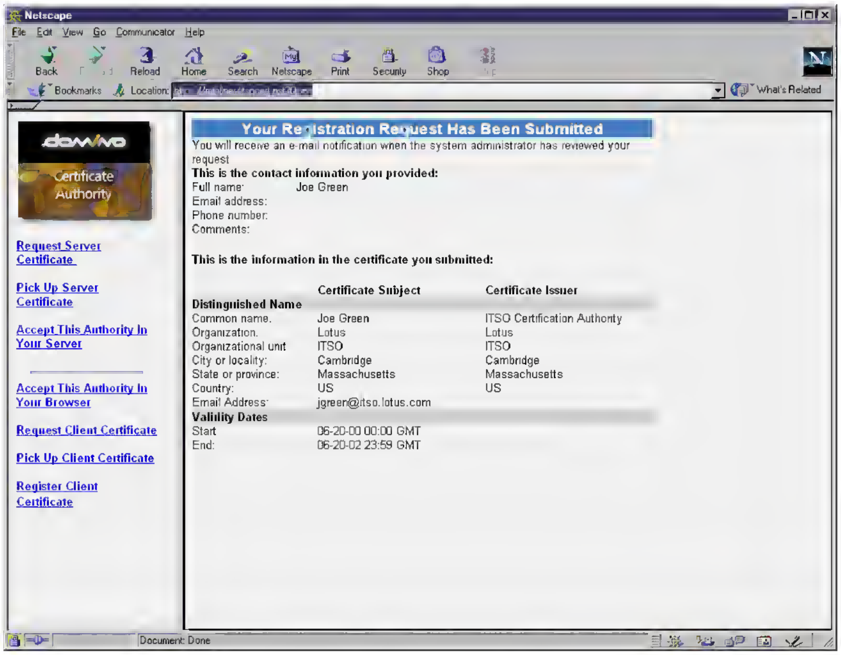
Here is the site's certificate:

Certificate for: Lotus
Signed by: Lotus
Encryption: Highest Grade (RC4 with 128-bit secret key)

Select Your Certificate: Joe Green's Lotus ID

Figure 54. Selecting a client certificate to be registered in the Domino Directory

If you have more than one certificate, select the one you wish to have registered in the Domino Directory (you can expand the list by pressing the arrow to the right of the field with the label **Select Your Certificate**). You can inspect the certificate by pressing **More Info ...**. When you have selected the correct certificate, press **Continue**. You will receive a confirmation panel like the one in Figure 55 on page 55.


Netscape
File Edit View Go Communicator Help
Back
Reload
Home
Search
Netscape
Print
Security
Shop
Bookmarks
Location:
What's Related
Certificate Authority
Request Server Certificate
Pick Up Server Certificate
Accept This Authority In Your Server
Accept This Authority In Your Browser
Request Client Certificate
Pick Up Client Certificate
Register Client Certificate
Document: Done

Your Registration Request Has Been Submitted

You will receive an e-mail notification when the system administrator has reviewed your request

This is the contact information you provided:

Full name:	Joe Green
Email address:	
Phone number:	
Comments:	

This is the information in the certificate you submitted:

	Certificate Subject	Certificate Issuer
Distinguished Name		
Common name:	Joe Green	ITSO Certification Authority
Organization:	Lotus	Lotus
Organizational unit	ITSO	ITSO
City or locality:	Cambridge	Cambridge
State or province:	Massachusetts	Massachusetts
Country:	US	US
Email Address:	jgreen@itso.lotus.com	
Validity Dates		
Start	06-20-00 00:00 GMT	
End:	06-20-02 23:59 GMT	

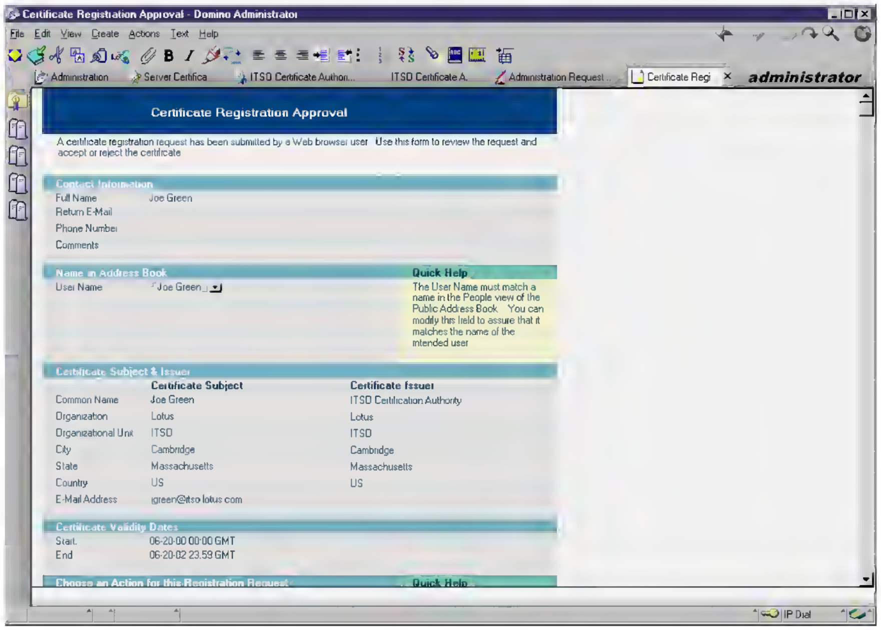
Figure 55. Confirmation of certificate registration request submission

This completes your request. Your administrator must now approve it for the request to be processed. They have the option of e-mailing you a confirmation that the request has been approved. Note that the actual copy into the Domino Directory may not be immediate since it is performed by a background system process (the Administration Process) and may have to performed on a different server than the one your request was submitted to.

You will not have to perform any further action once the request is submitted.

1.3.5.1 Administrator approval of client registration request

Open the Domino CA database and select **Client Registration Requests** from the menu on the left. This action opens a view of outstanding client certificate registration requests similar to the view previously shown in Figure 22 on page 26 (showing server certificate requests). Select the document with the request to be approved and open it. You will be presented with an approval panel as shown in Figure 56 on page 56.



Certificate Registration Approval - Domino Administrator
File Edit View Create Actions Text Help
Administration
Server Certifica
ITSO Certificate Authori...
ITSO Certificate A.
Administration Request ..
Certificate Regi
administrator
IP Dial

Certificate Registration Approval

A certificate registration request has been submitted by a Web browser user Use this form to review the request and accept or reject the certificate

Contact Information

Full Name	Joe Green
Return E-Mail	
Phone Number	
Comments	

Name in Address Book

User Name ⌜Joe Green⌟

Quick Help

The User Name must match a name in the People view of the Public Address Book You can modify this field to assure that it matches the name of the intended user

Certificate Subject & Issuer

	Certificate Subject	Certificate Issuer
Common Name	Joe Green	ITSO Certification Authority
Organization	Lotus	Lotus
Organizational Unit	ITSO	ITSO
City	Cambridge	Cambridge
State	Massachusetts	Massachusetts
Country	US	US
E-Mail Address	jgreen@itso lotus com	

Certificate Validity Dates

Start.	06-20-00 00:00 GMT
End	06-20-02 23.59 GMT

Choose an Action for this Registration Request

Quick Help

Figure 56. Client Certification Request

The top of the form has the contact information from the registration request.

The contact information need *not* be the same as the certificate subject information displayed the "Certificate Subject" at the bottom of the panel. They could be different if the submittor chose a colleague as a contact because, for example, a newly hired person without a telephone wished to register their certificate.

You can only view the certificate information on the bottom of the panel. If it is wrong (because, for example, the client chose the wrong client certificate from his keyring) you will need to deny the request and ask the client to resubmit his corrected request.

The remaining fields are:

- **User Name**:

  This field is the same as the one with the same name on the certificate approval panel (Figure 47 on page 45). The name to locate the person in the Directory can be changed from this field. This is to allow the administrator to change it to match one of the entries in the username field of the person's Person document. The submitted entry could be different if the certificate had a slightly different spelling or format but this should not invalidate adding it to the Domino Directory.

Again, you can select the down arrow to the right of the field to open the Domino Directory (any directories known to your client) to search for names and select the desired name.

- **Send a notification e-mail to the requestor**:

  This checkbox allows you to select that an automatic e-mail will be sent to the requestor. It will be checked by default if you selected this option in the certificate authority profile as shown in Figure 6 on page 8. Note that users should be cautioned that, even when their request is approved, there may be a delay before their certificate is added to the Domino Directory and, once added, propagated to all replicas of it.

- **Reason**:

  If you need to deny the request you can fill out this field. It will be saved with the request for future reference and included in the e-mail to the requestor.

If you approve of the request, press the “**Approve**” button in the Action section.

If you wish to deny the request, press the “**Deny**” button in the Deny section You will want to fill out the reason before denying the request.

You can check that the addition was successful by checking the requestor’s Person document Internet Certificates in their Person document in the Domino Directory, by using the ldapsearch utility to list their entry or by locating the request in the Administration Requests database as described in “Approving a client certificate request in the Domino CA” on page 44.

This completes client certificate registration.

Appendix A. Special notices

This publication is intended to help administrators to set up Lotus Domino R5.0.4 as a Certification Authority. The information in this publication is not intended as the specification of any programming interfaces that are provided by Lotus Domino. See the PUBLICATIONS section of the IBM Programming Announcement for Lotus Dominofor more information about what publications are considered to be product documentation.

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Domino Certification Authority and SSL Certificates

Redpaper

Setup Domino as Certification Authority

Process Client Certificate Requests

To test certificate based authentication it is necessary to create keyrings to hold certificates for HTTP servers and for the browsers used to access the servers. This is most conveniently done by creating a certification authority to create and administer the necessary SSL certificates

This redpaper describes in detail how to setup Domino R5.0.4 as a Certification Authority (CA). We describe how to create and configure the Domino CA database, how to create a server keyring and how merge and install certificates into the keyring. Next, we describe how to issue client certificates from our newly created CA. This involves all the steps in accepting our CA as trusted root in the browser, requesting a certificate, approving the request, accepting the issued certificate into the browser keyring and finally requesting registration of the client certificate.

We assume some knowledge of Public Key Infrastructure (PKI), x509 certificates and Domino administration.

Redpaper ISBN